Aalto University
School of Business

PARTNERING AND NETWORKS AS A STRATEGY TO ADDRESS DE ALIO MARKET ENTRY CHALLENGES

The why, how and with whom to collaborate in the biotechnology industry

Master's Thesis
Eija Nyyssönen
Aalto University School of Business
Management and International Business
Spring 2017

Aalto University
School of Business

Aalto University, P.O. BOX 11000, 00076 AALTO
www.aalto.fi

Abstract of master's thesis

Author Eija Nyyssönen

Title of thesis PARTNERING AND NETWORKS AS A STRATEGY TO ADDRESS DE ALIO MARKET ENTRY CHALLENGES: The why, how and with whom to collaborate in the biotechnology industry

Degree Master of Science (Economics and Business Administration)

Degree programme Master's Programme in Management and International Business

Thesis advisor(s) Nina Granqvist

Year of approval 2017 **Number of pages** 108 **Language** English

Abstract

It is important to study companies finding, creating, and entering new markets, especially when experiencing pressure in their mature home markets. The strategy context of commercializing a new innovative product into an emergent market segment, in an unfamiliar industry (de alio), with completely different business logics is extremely demanding, original, and interesting. The target market (biotechnology) is ranked one of the most high-risk and complex, involving symbiotic partnering, deep science, regulation and learning race competition dynamics. On top of this, the multinational case company faces extra challenges of a newcomer, without enough knowledge, access or networks, with internal coordination of two different business logics, and the accelerating competition of the emergent market. These factors contrast with the company home industry (material manufacturing) which is more calculated and mature, and where the company enjoys the incumbent position. Thus, a target industry partner is important and the partnering issues of de alio companies merit attention.

At the same time, globalization is changing industries by intensifying the importance of partnering. This study provides a snapshot update on how the trend is developing in one of the leading industries of this trend. The study contributes by combining and complementing classic and recent theories of partnering and market entry in a partnering framework to provide new insights for de alio market entries, especially on the topics where the academic community solicits contribution.

The main research problem focuses on how companies can manage the challenges of de alio market entry by forging partnerships. With whom, why and how to collaborate in the case context? The study uses the qualitative method of single intensive case study, with snowball sampling method, social network analysis and content analysis. The primary empirical data consists of twenty-five semi-structured interviews. The study was conducted in a research project between the case company and the Aalto University School of Business.

Big pharmaceutical companies were identified as the most important partnering target (e.g. research collaboration/supplier). To grow the market share, obtain competitive advantage, create and capture value in the biotechnology industry, a heterogeneous portfolio of supporting partnerships is necessary. This includes universities, Key Opinion Leaders in target segments, distribution partners and Contract Research Organizations. The main motivations for partnering are to access (overcome barriers), learn (gain assets), respond to competition, speed up processes and mitigate risks.

Adapting the "toolbox" of possible ways how to collaborate in the target industry is important. In biotechnology, a prerequisite for obtaining the partnering benefits is to relax some of the control and compensate it by building long-term win-win relations based on trust, synergy, common goals and aligning business models with the partner.

Keywords strategy, partnership, market entry, biotechnology, competitive advantage, innovations, pharmaceutical industry, manufacturing, industry, diversification, learning, globalization

Aalto-yliopisto
Kauppakorkeakoulu

Aalto-yliopisto, PL 11000, 00076 AALTO
www.aalto.fi

Maisterintutkinnon tutkielman tiivistelmä

Tekijä Eija Nyyssönen

Työn nimi PARTNERING AND NETWORKS AS A STRATEGY TO ADDRESS DE ALIO MARKET ENTRY CHALLENGES: The why, how and with whom to collaborate in the biotechnology industry

Tutkinto Kauppatieteiden maisteri

Koulutusohjelma Master's Programme in Management and International Business

Työn ohjaaja(t) Nina Granqvist

Hyväksymisvuosi 2017 **Sivumäärä** 108 **Kieli** Englanti

Tiivistelmä

On tärkeää tutkia yrityksiä, jotka etsivät ja luovat uusia markkinoita, erityisesti kun ne kokevat painetta omissa, kypsän vaiheen toimialoissaan. Strateginen konteksti, jossa kohdeyritys kaupallistaa uuden innovatiivisen tuotteen uuteen, nousevaan markkinasegmenttiin, vieraalle toimialalle (de alio), jonka liiketoimintalogiikka on täysin erilainen, on äärimmäisen vaativa ja mielenkiintoinen. Tutkimuksen kohdemarkkina (bioteknologia) on yksi korkeariskisimmistä ja kompleksisimmista, johtuen symbioottisesta kumppanuusdynamiikasta, korkeista tieteellisistä vaatimuksista, sääntelystä ja nopeaan oppimiseen perustuvasta kilpailusta. Kohdeyrityksen oma toimiala (materiaalituotanto) taas on laskelmallisempi ja kypsempi, ja siinä yrityksellä on vahva, vakiintunut asema. Haastetta lisää kohdemarkkinaan meno ilman vahvaa tietoa, verkostoja tai markkinaan pääsyä, nousevan markkinan kiihtyvä kilpailu ja kahden erilaisen liiketoimintalogiikan yhteensovittaminen yrityksen sisällä. Tämän vuoksi kumppani kohdemarkkinassa on tärkeä ja de alio -yritysten kumppanuudet ansaitsevat huomiota.

Samalla globalisaatio muuttaa toimialoja korostamalla kumppanuuksien merkitystä. Tämä tutkimus tarjoaa nopean tilannekuvapäivityksen trendin etenemisestä yhdessä trendin kärkitoimialoista. Lisäksi tutkimus tuottaa uutta tietoa täydentämällä klassisia ja uusia market entry- ja kumppanuusteorioita, tuottamalla uusia näkökulmia de alio -yrityksen kaupallistamistilanteisiin, erityisesti teemoista joihin tiedeyhteisö pyytää kontribuutiota.

Työn fokus on, kuinka yritykset voivat kumppanuuksien avulla lieventää vieraaseen toimialaan kaupallistamisen haasteita. Kenen kanssa, miksi ja miten solmia kumppanuuksia? Työ on toteutettu laadullisena tutkimuksena, metodeina yksittäinen intensiivinen tapaustutkimus, nimeämisvalinta, sosiaalinen verkostoanalyysi ja aineistolähtöinen sisältöanalyysi. Ensikäden aineisto koostuu 25 teemahaastattelusta. Tutkimus toteutettiin yrityksen ja Kauppakorkeakoulun välisessä projektissa.

Tutkimuksessa suuret lääkeyritykset identifioitiin tärkeimmäksi kumppanikohderyhmäksi (esim. tutkimusyhteistyö tai materiaalitoimittajuus). Markkinaosuuden ja kilpailuedun kasvattamiseksi, arvon luomiseksi ja kaappaamiseksi vaaditaan kuitenkin monipuolinen, tavoitetta tukevien kumppanuuksien salkku. Tämä tarkoittaa yliopistoja, tärkeimpiä mielipidevaikuttajia kohdesegmenteissä, jakelukumppaneita ja sopimustutkimuslaitoksia. Keskeiset havaitut motivaatiot kumppanuuksille ovat markkinaan pääsy (markkinaesteiden voittaminen), oppiminen (voimavarojen hankkiminen), kilpailuun vastaaminen, kaupallistamisprosessien nopeuttaminen ja riskinhallinta. On myös tärkeää sopeuttaa yrityksen kumppanuusmallivalikoima kohdetoimialaan. Bioteknologiassa kumppanuushyötyjen saamisen ehtona on kontrollin vähentäminen ja tämän kompensoiminen rakentamalla pitkäaikaisia win-win-suhteita, jotka perustuvat luottamukseen, synergioihin, yhteisiin tavoitteisiin ja osapuolten liiketoimintamallien mukauttamiseen keskenään yhteneviksi.

Avainsanat strategia, kumppanuus, market entry, bioteknologia, kilpailuetu, innovaatiot, lääketeollisuus, valmistus, teollisuus, diversifikaatio, oppiminen, globalisaatio

Aalto University
School of Business

TABLE OF CONTENTS

Aalto University
School of Business

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Big Pharma	Big Pharmaceutical Companies
CRO	Contract Research Organization
KOL	Key Opinion Leader
IPR	Intellectual Property Rights
FDI	Foreign direct investment
MNC	Multinational Corporation
R&D	Research and Development

1. INTRODUCTION

Firms entering new markets had been studied for decades when by the 1990s, scholars noted a shift in the dynamics of many industries: the rise of importance of partnering. It refers to the increasing influence of partnership networks, and is part of a shifting balance from regional towards global, traditional manufacturing towards innovative business logics, from mature technologies and industries towards emerging ones, from ownership towards partnerships, from value chains towards value networks, from materials towards services and so forth.

This study participates in the actively ongoing updates on market entry and partnering theory, from the point of view of a market entry taking place from a traditional industry to an alliance centred one. The study offers new knowledge and contribution by combining classic and recent theories of partnering and market entry in a theoretical framework designed to study partnering in de alio context (entering an unfamiliar industry), and applying it to analyse a challenging case.

From the viewpoint of firms, nation states, societies, employees and citizens, finding and creating new markets and entering them successfully is very important; especially when the firms are experiencing pressure in their traditional, mature markets. When the overall market situation is hard, well informed strategic choices play an ever more important role in the success and survival of firms. Here, research can help to make even better informed choices in the future by analysing the deeper dynamics and making visible the invisible foundations of the options and choices. This adds further practical importance to the study as the case may offer insight for other companies planning to execute similar diversification endeavours as a part of their strategy.

1.1 Partnering in de alio context

The research context is that a multinational corporation (MNC), incumbent in a mature, material manufacturing industry, has identified an opportunity for expansion and renewal. It commercializes a new product into an emergent market in an unfamiliar industry, which is an extremely demanding and interesting strategy. The more common, familiar and less demanding commercialization within the home industry or a neighbouring industry had not

been chosen due to the lack of a suitable business model, and hence the company opted for the more demanding strategy.

Furthermore, the case target market, the biotechnology industry, is ranked one of the most high-risk and complex, involving deep science, regulation, and learning race competition dynamics. Due to the risks, it has developed into a highly networked and symbiotic industry, where products and services may be produced by various entities interconnected in a network, instead of in-house.

On top of this, the case company faces the extra challenges of de alio diversification, ambidexterity and the entry timing of an emergent market with accelerating competition. For example, a de alio newcomer tends not to have enough knowledge, networks or access in the target industry. All these factors contrast with the case company home industry which is more calculated and mature, and where the company enjoys the incumbent position. Even the competitive advantages the company has in the home industry are not guaranteed to apply in the target industry without adaptation.

For all the above mentioned, a target industry partner is important and the partnering issues of de alio companies merit attention. Moreover, it is important to study the market entry and partnering strategy of de alio firms, since it is the foundation for the success of the market entry. Changing this strategy choice later on is not simple or easy and the costs of an erroneous choice can be substantial.

Therefore, the focus of the research is, how can companies alleviate de alio market entry challenges by partnering. Furthermore, this study was executed in a research project between the case company and Aalto University School of Business, and this collaboration ensures the applicability of the research in a realistic environment.

1.2 Research problem and gap

The main research problem of the study focuses on how companies can manage the challenges of de alio market entry by forging partnerships. With whom, why and how to partner in the case context?

In order to fulfil the academic objective of this study, I will combine, complement and extend existing partnering and market entry theories to the extent possible in a Master's Thesis. The aim is to provide new insights into their applicability in analysing de alio market entries in

complex global industry contexts. Therefore, although prior research in the area of new market entry, partnering and choosing entry mode is considerable, the context and specific focus of my research renders it original. I comment especially on the topics where contribution is solicited in the academic community, such as the role of ecosystems and networks in entry processes, a processual view of partnering and market entry, entry learning, the connection of resources, abilities and timing of entry, and innovation-entry relations (Zachary et al., 2015, p. 1389, p. 1393; Journal of Management Studies 2016).

Furthermore, the research is inspired by the observation that neither classic nor recent literature on market entry fully cover the entry of traditional manufacturing MNCs with a new innovative product into unfamiliar, emergent markets with completely different business logics. As Dunning argued in his update of the eclectic theory in 1995, globalization is changing the traditional manufacturing industries towards the rise of importance of partnering. The literature is keeping up with the change by covering the changing factors one by one. However, an overall picture has not formed yet (as a contrast to the classic, overarching paradigms), which is indicated by the need to combine various recent theories in order to research a case that contains various new factors. It is important to complement the literature to cover this phenomenon which forms an important part of the changing and complex reality of global industries.

Ambidexterity models, for example, can be used as ingredients for complementing and extending theory. They usually concern new business development of one technological or product field inside one industry or two neighbouring industries, but even they do not fully cover the shift from mature into emergent when it takes place between industries and in more complex contexts.

1.3 Research objectives and questions

In this study, my aim is to contribute new perspectives in the academic field of market entry and partnering strategy. In the wider sense, the study sheds light on the execution and challenges of bold and exceptional renewal strategies of companies. Here, these refer to a combination of innovation and de alio diversification into another industry. In the process, my aim is also to distil practical new knowledge for the company.

In the first place, the research process was started by reviewing literature based on the preliminary research problem statement. Furthermore, in the two preliminary focusing

interviews and group discussions with the company representatives, I could further specify the problem statement. In order to reach the aims, I investigate how different actors perceive the biotechnology industry segment, the drivers, the networks and the actors in them. I then analyse the motivations, advantages and disadvantages of the different strategy options, dynamics and conventions of the target market. The timing, competitive outlook and players' positioning in the segment play an important role as well. Furthermore, it is necessary to understand the characteristics of the entering company, the product, the amount and nature of the resources available for the market entry.

After reviewing the literature and conclusions from the preliminary focusing interviews, partnering was chosen as the focus. Firstly, partnering is a common tool when entering unfamiliar markets in general and biotechnology industry in specific, and secondly, the MNC also considers partnering a key focal point for the entry strategy.

In order to investigate the kind of partner types, constellations and modes that would be possible for the MNC in the given context, it is important to know the reasons why the company considers a partner necessary instead of acting alone. This refers to the needs of the company or the type of advantages it seeks that the partner could contribute. Conversely, the company must be aware of what kinds of assets or advantages it is able or willing to offer so that a partner would be interested in partnering with a newcomer in the industry.

Consequently, the main research problem and focus of this study is, how can companies manage the challenges of de alio market entry by partnering. The research questions used to investigate the research problem are:

1. Who are the key partners/partner types in this context?
2. Why de alio needs and wants to partner in this context?
3. Which are the possible ways how to partner in the biotechnology industry and especially with Big Pharma?

All in all, in order to address the described research problem, and complement the extant theories, the detailed objectives of the research are:

1. Review existing literature related to companies commercializing new products in unfamiliar, emerging markets with a different business logic.
2. Examine the needs, motivations and targets involved in market entry and partnering in de alio context.

3. Investigate the partnering network, dynamics, conventions and modes typical in the particular segment of the biotechnology industry.
4. Assess the possible market entry modes that can be used to fulfil the market entry and partnering targets of de alio companies.
5. Analyse challenges and possible solutions related to de alio market entry and partnering modes.

1.4 Definitions of key concepts

Ambidexterity: In organizations, it is understood as the ability to be successful at both exploiting the present and exploring the future (O´Reilly & Tushman, 2004, p. 2). In practical terms, an ambidextrous organization has differentiated the new venture from the core business in the organizational structure in order to allow for different types of business logics, yet maintaining coherence via close senior management cooperation.

Biotechnology: According to (United Nations' Convention on Biological Diversity 1993, Article 2), biotechnology means "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use". On the other hand, according to Pisano (2006, p.11, p.16), biotechnology includes technologies for drug R&D based on scientific advances in biology, molecular biology, cell biology, chemistry, biochemistry, genetics, genetics engineering, computer science, bioinformatics, mathematics, physics, engineering and medicine.

Biotechnology industry: According to Burrill (2007), the biotechnology industry started to develop in the 1980s with close links to the pharmaceutical industry. A biotechnology firm is advancing, creating or commercializing new technologies for drug discovery in contrast to using traditional synthetic chemistry (Pisano, 2006). According to Stremersch and Van Dyck (2009), biotechnological medical devices are considered one of the core industries of the Life Science industry (along with pharmaceutical and therapeutic medical devices), while cosmeceuticals, medical devices and equipment, and nutraceuticals are considered boundary industries.

De alio: The phenomenon is understood as diversification of a company into an unfamiliar market or industry. The term is often contrasted with de novo which means that the company was "born" in the industry in question (Agarwal & Moeen, 2015).

Market entry; entry mode strategy: The definition by Root (1983, 1994) is said to be the "bedrock" of market entry mode definitions. According to Root, market entry is the entry of a firm's products, technology, human skills, management or other resources into a foreign country (Sharma & Erramilli 2004, p. 2). Recent theories take into account the effect of globalization: the entry not primarily to a geographical location but a global market segment. Consequently, entry mode is an institutional arrangement that makes the market entry possible. Entry modes in practice include a spectre of arrangements, for example, export (direct, indirect, own channels or intermediaries), wholly owned subsidiaries (greenfield or acquisition), joint ventures (majority, minority or equal ownership) and contractual modes (licensing, franchising or management contracts).

Partnering: The concept of partnering has experienced shift of meaning as described for example by Dunning (1995). In the classic theories, organizational arrangements were categorized in full ownership, partial ownership and market transaction type contractual agreements. Of these, full ownership and contractual agreements were not considered partnering. Hence, the classic concept of partnering revolved around shared ownership. At the same time, this category of organizational arrangements was considered exceptional and non-preferred. The rise of importance of partnering described by Dunning includes the expansion of collaborative atmosphere to contractual agreements (Dunning, 1995; Powell, 1998). Furthermore, partnering is no longer restricted or based on shared ownership only. The key focus now is in building trust, common goals, synergies and long-term relationships (Chesbrough & Schwartz, 2007).

2. LITERATURE REVIEW

In this literature review chapter, existing relevant theories and concepts on partnering will be presented, and extended as necessary. I will form the basis for the review of the market entry literature in applicable parts and complement it with new business development theory, market entry timing theory and partnering theory.

Longitudinal review of partnering related theories is important because it reflects both the development and changes in the business dynamics caused by globalization and the respective response in the literature development. In the case context, the classic theories correspond to the case company home market dynamics of traditional manufacturing and the more recent theory updates correspond to the target market dynamics of partnering and innovation centeredness. Complementary theories correspond to those somewhat extreme context aspects, which are not fully covered by the partnering related theories or which require combining separate theories. I will combine these in the theoretical framework presented at the end of the chapter.

2.1 Partnering transition from one world to another

Sharma and Erramilli (2004) place the starting-point of market entry mode research in the year 1976. Since then, the field has seen three paradigms and at least six major theories in as little as four decades of research (Sharma & Erramilli, 2004).

The entry mode theories have looked at the strategy of entry mode focusing in different areas of it: the market, the firm, the nature of the product, the resources. The different entry modes and the theories thereof have also been classified in different ways, for example, according to equity/non-equity, inside-out/outside-in, location of production and marketing, the level of: risk, control/ownership, required commitment of resources, expected return-on-investment and other desired outcomes.

One of the most esteemed theories is the classic eclectic theory of Dunning (1980). In this study, it is especially useful, as Dunning has updated the theory in 1995 to respond to the changes in dynamics described by him as “the Rise of Alliance Capitalism” brought on by the globalization. This updated version of the theory will be referred to as updated eclectic theory in the rest of the study. Furthermore, Dunning’s two versions of the theory reflect the key aspects of the classic theories and the recent theories (and their development).

In both versions, Dunning approaches market entry strategy through three aspects, the interpretation of which changes to correspond the changes in business reality. These aspects are ownership related advantages (O), location advantages (L) and internalization advantages (I). In the following these aspects are used to highlight the key factors of the classic theories that correspond to the traditions of the case company home industry and the more recent theories that correspond to the dynamics of the partnering and innovation centred target industry. Furthermore, two case context key factors not fully covered by these theories will be approached through complementary theories on de alio, industry lifecycle, and ambidexterity.

2.1.1 Partnering and market entry in the home industry tradition

Reflecting the key factors of the case context, the focal points of the classic market entry theories can be summarized in five aspects.

First, in the classic theories, internalization (I), control and full ownership are in a key role when obtaining and using resources. The main motivation for partnering in classic theories is mitigating risks when full ownership is considered too risky in a foreign country. Also in the traditional view, according to Dunning (1995, p. 462), "most contractual arrangements were considered as market transactions - even in situations in which there was some element of a continuing and information sharing relationship" between the participants. The motivations are further discussed in section 2.2 and the mode preferences in section 2.3.

Secondly, the bedrock of entry mode theories is the assumption that the primary motive for market entry is to exploit a firm's sustainable and transferable, ownership-specific (O), monopolistic/competitive advantage (such as a differentiated product or a proprietary technology) to obtain above normal returns and the activity is seen as production and marketing of the product. Hence, according to Sharma and Erramilli, the theories assume that the lack of such advantages probably minimizes the firm's operations in the target market, as it is more typical to rely on a company's existing resources to compete than develop new ones (Sharma & Erramilli 2004, pp. 3-9).

Thirdly, the entry mode theories tend to concentrate on countries and locations (L), entering the target market in a geographical sense, which is often signalled by the use of terms such as "foreign country", "home country" and "host country" in the definitions and theories of entry modes (see for example Sharma and Erramilli 2004, p. 11; Peng, 2001). This is one

possible point-of-view in the multi-layered reality of global business, and these obviously are unavoidable and important factors in our physical world, yet these are no longer a main focal point in all cases due to globalization.

Fourthly, the entry mode theories tend to assume that the firm enters the target market in the same industry as in the home market, or a neighbouring one. This is understandable as these are the most common alternatives but it is also important to account for diversification to an unfamiliar industry as in the case context.

And finally, fifth, the existing entry mode theories tend to assume an existing, established market which the firm wishes to enter. However, in the case context the target market is in an emergent life cycle stage.

2.1.2 Partnering and market entry in the target industry tradition

Reflecting the key factors of the case context, the recent market entry theories re-interpret the five focal points. Indeed, the more recent literature on market entry recognizes the changes taking place in the global industries, for example, Dunning (1995, 1998) named the phenomenon the rise of alliance capitalism.

Firstly, in his updated eclectic theory, Dunning (1995) argues that alliances can be utilized as quasi-internalization (I) by forming trust-laden long term partnerships and hence avoiding the disadvantages of full ownership. Powell (1998) agrees, contending that it is not necessary to have ownership in order to reap the benefits.

On the other hand, the views on alliances have changed concerning the contractual arrangements as well, in the other end of the continuum of partnership modes. In the more recent view (Powell, 1998), contractual transactions also include a more collaborative atmosphere and may include aligning business models. Moreover, Pisano (2006, p. 162) emphasizes that "whether value will ultimately be created depends on the execution of the [partnering] project". Thus, the focal point has shifted from the mode choice to quality and maintenance of relationships. This reflects a shift from the event point of view to the processual approach.

Secondly, in the recent theories, the competitive advantage focus has shifted from exploiting existing advantages to also developing new competitive advantages. Sharma and Erramilli (2004, p. 6) recognize that not all resources are "ready to use" but may only become sources

of competitive advantage after finding synergy with target market resources or a partner's resources. Dunning (1995) concludes:

> *It also needs to be more explicitly acknowledged that firms may engage in FDI and in cross-border alliances in order to acquire or learn about foreign technology and markets, as well as to exploit their existing competitive advantages. (Dunning 1995, p. 481)*

Dunning hence updates the eclectic theory by arguing that technological accumulation and learning should be identified as ownership-related (O) advantages of firms.

Peng (2001, p. 812) summarizes the view that capability to learn from partners is key. Especially so for MNCs entering unfamiliar markets, where obtaining target market knowledge is crucial:

> *capabilities to learn from partners may be a tacit resource underlying a firm's competitive advantage [...]. For example, learning from partners is found to represent a primary motivation for firms to enter alliances […]. For MNCs, the intensity and diversity of learning from local partners facilitate local knowledge acquisition and strengthen firm performance in host countries […]. For local firms, learning from MNC parents is likely to enhance survivability and performance. (Peng 2001, p. 812)*

Creating a win-win with partners is possible, as target market firms may consider partnering with a MNC as enhancing their performance - and survival chances.

Thirdly, in the face of the changed interplay between global and local, some researchers are using more general terms "home market" and "host market" (Ito & Rose, 2002), instead of the traditional "country" (for example Peng, 2001). This may also reflect the profound shift that has taken place from a nation-state centred world view to a global one. In this study, I consider that interpreting terms such as "local" and "host countries" in terms such as "target market" is possible, with due adjustments.

In the globalized world, the role of physical locations (L) in global industries is present mainly in two aspects. On one hand, it is in the practical marketing and distribution activities, in concrete physical locations. On the other hand, the market has not developed similarly in all regions or countries due to business environmental differences such as resources available, regulation and local subsidies (Maine et al, 2014), creating city or regional clusters or "hotspots". New entrants in emerging industries tend to cluster in a few locations that have a strong and balanced ecology of research centres, talented human resources, excellent transportation, communication and other assets supporting innovation (Maine, 2014, p. 5).

Dunning (1995, pp. 479-480) also includes the dynamics of clusters in his update of the eclectic theory locational (L) factors. He argues that often several bilateral relationships are needed at the same time, hence the location of a constellation of partners is important when deciding the location of an operation. Furthermore, additional benefits may arise such as the static agglomerative economies, increased opportunities for networking, easier gathering and dissemination of information, cross-fertilization of ideas and learning experiences, and finally, possible government support measures to such clusters (Dunning 1995, pp. 479-480). Especially the networking, information and learning related benefits are relevant to the case at hand, as they support access and learning which are two key factors discussed later in the study.

While taking into account the role played by the locational factor, this study prioritizes the global viewpoint, because the biotechnology industry is primarily global although it operates according to the local dynamics in each country. Various realities are present simultaneously.

Fourthly, the recent theories keep assuming that market entries tend to take place in the same industry or the neighbouring one. Finally, fifth, the recent theories also keep assuming an established market into which the entry takes place. These two factors form part of the somewhat extreme nature of the case context and need to be covered by combining, complementing and extending the market entry theories with complementary theories on de alio, industry life cycle and ambidexterity. This aims to contribute to the existing theory literature field.

All in all, it has been said that entry mode choice has received enormous attention from researchers in international business (Sharma & Erramilli, 2004). Indeed, the current understanding of the entry mode strategy field is such that the need for more entry mode studies has been sharply questioned in the academic community, suggesting that saturation point has been reached and latest studies have offered little new, rather more of the same old (Shaver, 2013). This argument, however, has sparked a strong response. The argument in favour of continuing the study of entry modes and ideas for some future avenues of research are presented by for example Hennart and Slangen (2014), Zachary et al (2015) and the call for papers of the Journal of Management Studies (2016).

As a researcher, I, too, believe that new points-of-view will always be presented, even though a brief stagnation might take place in the process. The object of research, that is, business and its environment will not freeze but keep changing, and hence, research must keep up and

keep interpreting it with new theories as old ones no longer seem valid. For example, the "end of history" was thought to be at hand when the Soviet Union collapsed (Fukuyama 1992) but obviously this was not the case. Paradigms and theories have changed various times in the history of entry mode research as well, why would it stop here?

2.1.3 Comparing the two partnering traditions

The research at hand will take into account the debated "saturation" of the above reviewed literature, yet the case and the context investigated requires that the market entry and partnering strategy be approached from yet another different point of view or combination of them. The revised views of Sharma and Erramilli, Dunning and Peng describe the case context better than the traditional interpretations, yet they call for extension or combining with other theories in order to fully apply to the case at hand. In the following, I will review the five key factors (internalization, ownership-specific assets, role of locations, de alio diversification, emerging target market) highlighting where the case context is aligned with the theories and where its extreme features require complementary literature. The summary of the differences and comparisons can be seen in Figure 2.1.

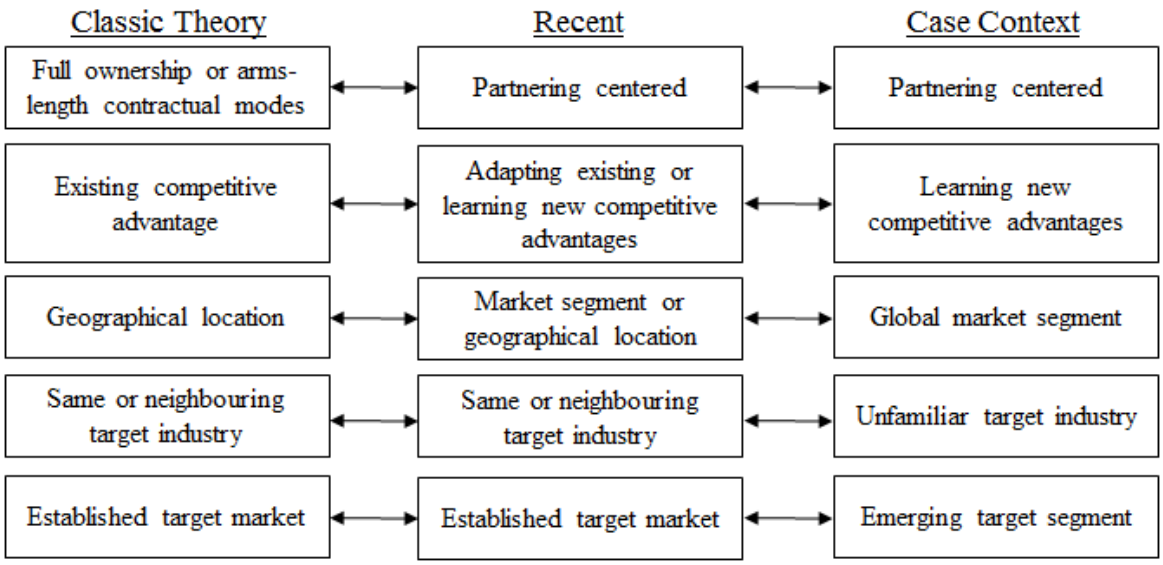

Figure 2.1. Comparison of classic theory, recent theory and case context factors

Firstly, as in the recent theories, the target industry, that is, biotechnology industry, is highly partnering centred. However, the classic perspective is also present in the case context in the form of the home industry traditions on full ownership versus partnering. Indeed, one of the aims of this study is to investigate these ambidextrous dynamics.

Secondly, as in the recent theories, in the case context, the de alio parent company is not primarily exploiting existing competitive advantages but aiming to create new ones. The parent is not the entity possessing the relational assets (that is networks), intellectual assets (that is knowledge about market conditions, stakeholders, etc.) or other classic superior resources mentioned by Sharma and Erramilli, and the venture or the target market partners are not the entities absorbing them. Therefore, it is critical for the market entry that the de alio case company obtain resources (especially knowledge, networks, access) from its target market partners and is capable of absorbing them. It can also be argued that on the contrary of possessing specific knowledge that can be converted into products and competitive advantage as the theories assume, the company started the venture with little target market specific knowledge, and instead possesses a product that it wishes to use in order to produce knowledge. The entry and partnering strategy are motivated by the venture and the partners acting as learning tools to produce new assets (especially knowledge) for the parent, and funnelling information flows to the parent instead of only transferring knowledge and resources from the parent to the venture and partners. However, both the new venture and target market partners may indeed benefit from learning from the MNC its general strengths and business knowledge.

Thirdly, as in some of the recent theories, in this case, the market is not primarily a geographical one but a global segment and industry. The markets of a global industry are multi-layered and have global, regional and national, even sub-national levels. Furthermore, classic market entry theories and some of the recent ones as well tend to pair the market entry with internationalization. However, the shift to a global business reality has required that this point-of-view become multi-layered as well. In this case, the de alio entrant company is a MNC and the target market segment is also global. This starting-point creates a very different context compared to a firm which is internationalizing for the first time or has little international activities, and also very different compared with the context of a small born-global (Oviatt 1995, 2005; Gabrielsson et al. 2004, 2008; Laanti et al. 2006).

Nevertheless, in the globalized world the role of physical locations (L) in global industries is present mainly in three aspects. This means, a) the strong regulation of the biotechnology which may vary depending on the region for example between the EU, non-EU European countries and the US. Then, b) the very geographical, physical market entry will obviously need to take place especially in the form of distribution strategy, but this too is viewed as entering various regions/countries at once. The strategy needs to tackle the practical

distribution challenges and the strategic question of whether to market, sell and distribute the product directly from the headquarters, via subsidiaries and/or via distributors. The geographical context of the commercialization here is broadly Europe- and US-based, yet as the other actors in the target industry and market are international/multinational players, the focal point of the research is multinational (Maine, 2014). Moreover, c) it means the role played by the biotechnology hotspots or clusters of organizations, agglomerated in one small geographical area.

Fourthly, although the recent theories are relatively better equipped for the case context than the classic ones, the case context is somewhat extreme for both classic and recent theories. This is because the multinational corporation, an incumbent in its industry and the home market, is adopting an ambidextrous renewal strategy of entering a new market segment with a new product in an industry where it has practically no previous position anywhere in the world. It enters "de alio". It has manufacturing (home) industry advantages and capabilities of an incumbent, but these are not directly transferable to the very different dynamics of the target market, and need to be coupled with a considerable amount of learning and adaptation, more and different from entering the usually assumed same or neighbouring industry. The product in itself is not yet clearly differentiated and although the proprietary technology and its property rights are a key asset, similar technologies and products are available. In order to fully cover these contextual key factors, in the following sections I will apply the complementary theories concerning de alio diversification and ambidexterity.

Fifth, the classic nor recent theories account for entering a new, emerging, non-mature market. They do not fully cover the de alio ambidextrous diversification either. However, in the case context, the target market is in a state of change which is reminiscent of an emerging market stage. In order to cover these key factors of the case context, in the following section, I will present the industry lifecycle theory. Finally, in the following section I will combine the de alio diversification, industry lifecycle and ambidexterity theories into one novel interpretation in order to extend and contribute to the theory field.

As a summary, it can be said that the classic theories and the more recent theories are differently equipped to analyse the case at hand. Neither of them covers it fully, the case context being somewhat extreme. In the ambidextrous duality of the case context, classic theories correspond to the traditions of the case company home industry and the more recent theories correspond to the dynamics of the partnering and innovation centred target industry.

In order to cover fully an ambidextrous case with home industry and target industry, the study also needs to use both sets of theories to analyse the transition from one to the other.

2.1.4 Between two worlds: de alio, ambidexterity and window of opportunity

As it was noted in the previous section that the extant market entry theories did not fully cover all of the case key aspects, in this section I will review complementary theories related to the case context in order to extend the market entry theories. The aim is to account for the case context specifically on the two aspects calling for extension: the entry to an unfamiliar, non-neighbouring market (de alio) and the time dimension, that is, the emergent life cycle stage of the target market.

2.1.4.1 Role of the de alio factor in the market entry

To examine the de alio entry to an unfamiliar industry, the classic Ansoff Matrix (Ansoff, 1957) serves as a starting point. It offers four strategies according to whether the product to be marketed and the market that is targeted are new/unfamiliar to the company. Two of the four strategies can be considered de alio: expanding the market of the existing company products to a new market or industry, or creating new products for a new market or industry. The interpretation of the matrix suggests that the newer aspects are involved in the process, and the further it reached from the familiar old business realm, the more demanding is the strategy. An adaptation of the matrix in Figure 2.2 shows the analysis of the aspects in the case situation: the knowledge and competences to be utilized in the commercialization of the new innovation are new, and so is the business. The situation corresponds to the diversification strategy of the Ansoff matrix, generally considered the most demanding of the four growth strategies.

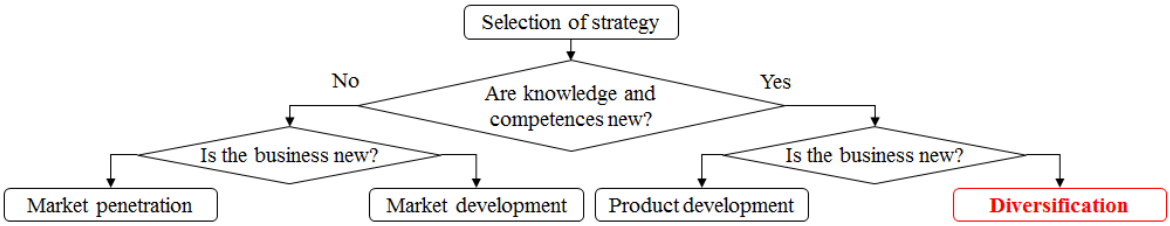

Figure 2.2. Adaptation of the Ansoff matrix depicting the situation of the de alio company

The need to learn and develop new competences and assets is a central factor in the target industry dynamics and in the recent partnering centred market entry theories. The fact that the case context includes de alio diversification practically means that it further intensifies the learning need of the entrant.

2.1.4.2 Role of the window of opportunity in the market entry

Apart from the point of view of the company, considering the newness of the product and business, competencies and the unfamiliarity of the target market, the Industry Life Cycle Theory offers a view into the general development stage of a given market. The industry life cycle development curve is presented in Figure 2.3. Depending on the focal point of each author (Gustafsson at al. 2015; Peltoniemi 2011, 2014; Agarwal & Bayus 2004; Bayus & Agarwal, 2007; Suarez et al., 2015), the early phases of the life cycle consist of two or three phases: an emergence and growth phase or alternatively, an emergence, co-evolutionary/co-development and growth phase. In the theories of the first kind, this case context takes place in the emergence phase, while in the theories of the second kind, the case takes place in the co-evolutionary/co-development phase. However, the key aspect to note that the phase in question is the one before growth phase: when the segment is no longer brand new but a dominant design has not yet emerged either.

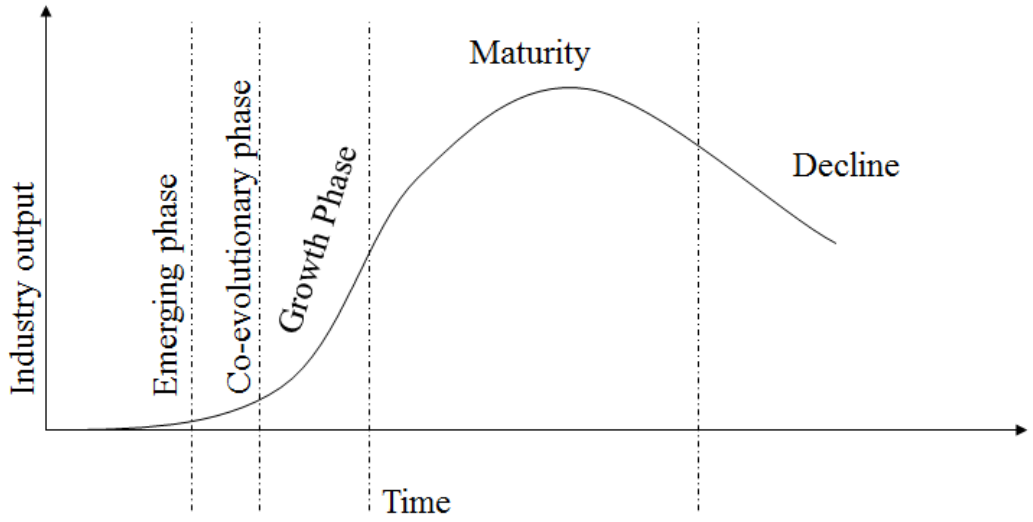

Figure 2.3. Representation of the industry life cycle including the co-development phase

In the case of a de alio entry, industry life cycle stages of two markets will need to be considered: the home market of the company and the target market of the commercialization. Figure 2.4 shows an adaptation of the Life Cycle theory with the case company markets indicated in red. The multinational parent company operates in a mature material industry where it is an incumbent. With its new venture it is reaching into a market that is in a co-evolutionary/co-development or emerging phase. According to Peltoniemi (2011, pp. 350-354), the emergence phase is characterized by technological innovation, entry of a large number of firms and population level learning and building of legitimacy. The mature phase

on the other hand is characterized by process R&D (instead of product R&D), a dominant design, shakeout and consolidation in number of firms

The industry life cycle stage also defines the market entry environment characteristics further, and offers an idea of the time dimension for the commercialization. The rise of a dominant design marks the end of co-evolution/co-development or emergence and signals the beginning of the rapid growth phase where dynamics change from R&D and numerous entries towards consolidation/shakeout and economies of scale. The time frame available for commercialization and successful market entry therefore means the time left for preparing for the shakeout, as the case company has decided to enter before it. In the literature, there is debate (Lieberman, 1988; Peltoniemi, 2014) on the pros and cons of entering early (before the appearance of a dominant design) and late (after appearance of a dominant design). According to Peltoniemi (2014) large de alio companies mostly enter late in order to exploit their competitive advantages in economics of scale. This underlines the special natures of the case context, as the MNC has decides to enter early.

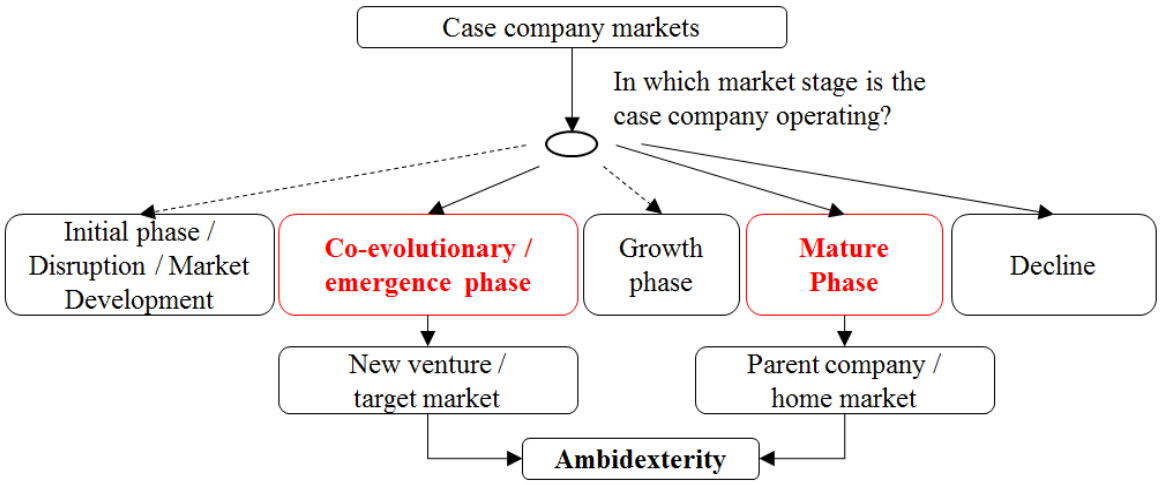

Figure 2.4. Adaptation of the Life Cycle theory with the case company markets indicated in red

2.1.4.3 Role of ambidexterity in the de alio diversification strategy

As the two markets and industries where the company is to operate simultaneously are in two very different phases, according to the Life Cycle Theory, this poses certain challenges to the commercialization operation. One answer to these challenges fitting two very different dynamics in one company simultaneously, is offered in the Ambidexterity model. Usually ambidexterity is understood as a move by a company from a mature stage product/technology/solution s-curve to an emerging stage innovation s-curve within the same or neighbouring industries, in order to avoid declining with the old technology due to

the advent of new product/technology/solution innovations by competitors (Christensen, 1997). This means acting in two s-curves simultaneously.

In this case context, however, this more common, familiar and less demanding commercialization within the material (home) industry sphere had been analysed by the company but not chosen due to lack of a suitable business model, and hence the more demanding strategy of diversification to a completely different industry with completely different dynamics was adopted. The link between the business logics is that the company acts as a material producer in both industries.

I have combined the two theories (Figure 2.5), Life Cycle Theory and Ambidexterity model, in a novel manner in order to contribute to market entry theories. In the figure, the move of the case company from one s-curve to another represents not two products/technologies/solutions in the same/neighbouring industries but two industries in different points of industry life cycle (mature and emergent) where the new venture is extending or diversifying the business of the parent MNC from one to another (home industry to target industry). The de alio entry strategy, the focus of this research, is marked in Figure 2.5.

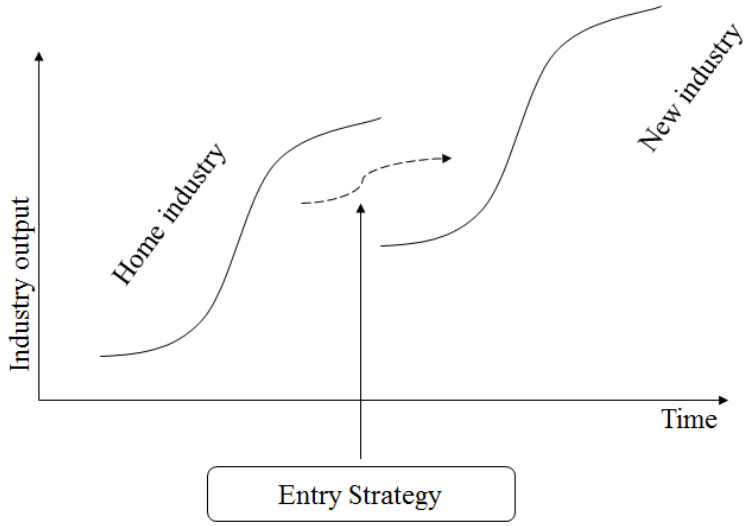

Figure 2.5. Entry strategy as key tool in diversification: adaptation of Life Cycle theory and Ambidexterity model

At the same time, it is worthwhile to bear in mind that the driver behind the emergent stage of the target market and the attractive business opportunity is the possibility of a more typical industry wide switch from a traditional technology/solution s-curve to a new, disruptive s-curve of the next generation solutions.

Furthermore, ambidexterity within home industry or neighbouring industries, as usually understood, is based on the activity of "disrupting" one's own ongoing business in order to prevent others from doing it. According to the Ambidexterity model, this needs to be considered in the organizational structure of the new venture as well. In the de alio case context, the new product and venture do not directly disrupt the existing core business because the new venture operates in a completely different industry. Despite this, inside the parent company, the new venture may still compete for the same limited resources with the existing businesses and therefore an ambidextrous organizational structure approach is apt.

According to the ambidexterity model, companies who have been successful in acting in the existing and new businesses simultaneously share the structure that separates their new units from the traditional ones allowing for different processes, structures and cultures while they maintain tight links between units by using integrated senior executive teams (O'Reilly & Tushman, 2004, p. 2).

In the case context, the company wishes to diversify and expand into another industry, and hence does not want to exit, that is, sell the innovation (unlike many other innovators in the biotechnology industry). The parent has also considered the pros and cons of creating a spin-off, which is an extremely common organizational structure in the biotechnology industry, as well as most of the competitors of their product are university spin-offs. However, as the company has decided that it prefers to foster new ventures that will one day be integral new business areas for the parent company, it has decided not to spin off.

Therefore, the venture team in charge of the commercialization of the new product is structurally placed as an internal start-up within one of the departments of the parent company, with a common CEO steering all parent company internal start-ups. According to Klepper (2002), the venture may benefit of the accumulated knowledge, managerial and organizational experience, resources and capabilities of the parent company, while Dencker, Gruber & Sonali (2009), and Bayus & Agarwal (2007) add the ability to learn after entry.

However, although being an incumbent in one industry is said to have these advantages (for example general business experience, knowledge, resources), the unit preparing the commercialization and market entry of a radical innovation is not being given these advantages automatically; instead, the unit was described as an "internal start-up" that so far had been successful enough to be given permission to continue the project but needed to continuously exercise "internal selling" and educating the parent company about the

activities. Moreover, considering a large multinational company, an incumbent in its home industry, may have very impressive strengths and assets to offer but it needs to be borne in mind that even the strongest asset in the home industry context may need to be fine-tuned or adapted to the target industry context in some degree in order to harness its full potential:

> *a science-based business entails unique challenges that require different kinds of organizational and institutional arrangements and different approaches to management. Posed simply, what works well in other settings may not work as well in a science-based setting. (Pisano, 2006, p. 4)*

An array of further questions could be asked about the chosen internal start-up strategy and its repercussions. However, for the purposes of this research, these questions will be referred to ideas for further research. The focus of the research at hand will be in the market entry strategy and for this, the internal start-up structure shall be taken into account only from the point of view of how does it affect the entry strategy.

2.2 Why to partner: Motivations for partnering in the de alio context

I have now reviewed the classic and more recent market entry theories plus theories complementing the de alio and ambidexterity aspects of the case in order to cover the key factors of the case context related to partnering. It is now time to move on to discuss the needs, motivations, targets for partnering.

As seen in the previous section, the triple novelty of the de alio context at hand means a new product and an unfamiliar, emergent market with a limited window of opportunity, which according to the theories mentioned, signify considerable demands to a company. Therefore, the entry strategy choice needs to provide tools to conquer those demands.

Traditionally the full ownership and in-house activities (control) have been the default preferred option, and partnering viewed with the main motivation of mitigating risks when full ownership has been considered too risky. However, partnering has become ever more popular as a strategy in the fast-paced, complex reality of globalized business and especially high-technology markets. McCarthy et al agree, commenting that:

> *Those firms competing in high-technology markets [...] will find themselves to be part of local and global networks. The strategic choices in this regard then are surprisingly simple: How to understand these networks in order to get them to work for you (or at least not against you), or ignore them at your peril. (McCarthy et al, 2007, p. 246)*

This means that partnering is expected and it may prove impossible to act in a partnering centred environment without adapting to its dynamics.

2.2.1 Key motivations for partnering in home and target industry tradition

From the literature review of the classic theories, I observed that mitigating risk has been the main motivation to partner in traditional manufacturing industries. This can be observed from the preference for full ownership, control and internalization of activities: partnering is considered the second best option (Dunning, 1995) which is chosen only in conditions of high uncertainty and little monopolistic advantage. Furthermore, contractual market transaction type of relationships is preferred over shared ownership partnerships. This also means that a motivation for partnering has been to exploit the firms existing competitive advantages in the risky conditions.

From the literature review of the recent theories, on the other hand I observed that there are five key motivations categories which reflects that partnering is now used for many more purposes than in the traditional manufacturing industries.

The first motivation category is still risk mitigation, especially in the target industry, that is biotechnology industry (Pisano, 2006; Furr et al., 2014), where partnering has become a key aspect of dynamics, a prerequisite for survival in an environment of enormous investments, risks and uncertainty. However according to Dunning (1995, p. 476), externalizing risk is perceived not only as sharing big investments, but long term trust-laden partnerships may contribute the advantages of full ownership (internalization) without the inflexibility, bureaucratic or risk related cost associated with it. Also, partnering for lower transaction costs or higher operating efficiency (R&D, manufacturing, marketing and distribution) or higher product quality may be seen as risk mitigation. Chesbrough & Schwartz (2007) agree with Dunning in saying that co-development alliances can greatly lower R&D cost and expand innovation output, while long term partnerships lower the risk as trust is built.

The second motivation category is securing and obtaining assets. Greis et al. (1995) mentions securing assets related to research, development, manufacturing and marketing. Dunning (1995, p. 477) agrees and elaborates that partnering can be used to develop new skills, knowledge and other proprietary advantages, organize new knowledge, internalize the skills and learning experiences of other organizations and successfully manage a complex portfolio of core assets and value-creating disciplines.

The third motivation category is responding to barriers (Greis et al, 1995) and gaining access. Dunning (1995, p. 467, p. 475) mentions partnering to overcome or create barriers, gain access to new and complementary technologies, seek out and forge productive linkages with suppliers and customers. Chesbrough & Schwartz (2007, p. 56) agree, adding partnering to open up new markets that may otherwise have been inaccessible and discover new value creation opportunities previously unidentified. Powell (1998) adds gaining access to knowledge. Peng (2001, p. 812) agrees with Powell (1998) that possibility to learn from partners may be a tacit resource underlying a firm's competitive advantage.

The fourth motivation category is competition where partnerships can be used to position the firm in the competitive landscape of the industry and respond to global competitive environment through defensive or offensive partnerships. Greis et al. (1995, p. 615) exemplify partnership with a major competitor to gain joint global dominance as a defensive and a network of alliances to halt the perceived inroads of a major competitor as offensive. Powell (1998, p. 230) adds that firms with experience partners compete more effectively in high speed learning races.

The fifth motivation category is time where Dunning (1995) argues that partnerships may be used to speed up innovatory or learning processes and upgrade the efficiency of particular activities, for example research and development (R&D). Chesbrough & Schwartz (2007) add that subsequent partnering agreements with long term partners tend to be faster and more profitable.

The authors' (Greis et al. 1995; Dunning, 1995; Chesbrough & Schwartz, 2007; Powell, 1998) views on partnering motivations can be combined and further classified as in Table 2.1.

Table 2.1. Summary of partnering motivations in key theories

Classification of partnering motivations	Description
Risk	Flexible, less risky, less costly; allow many of the advantages of internalization without the inflexibility, bureaucratic or risk-related costs; externalize risk; lower transaction costs; upgrade the efficiency of particular activities - for example, research and development (R&D), marketing and distribution, manufacturing; maintain and upgrade product quality; can significantly reduce R&D expense; expand innovation output;

	Faster and more profitable partnering projects enabled by aligning business models and sustaining and expanding long term partnerships.
Assets	Secure complementary assets (research, development, manufacturing, marketing): develop new skills; create and organize new knowledge, gain new proprietary advantages; internalize the skills and learning experiences of other organizations; successfully manage a complex portfolio of core assets and value-creating disciplines
Barriers	respond to barriers; overcome or create barriers; gain access to new and complementary technologies; seek out and forge productive linkages with suppliers and customers; open up new markets that may otherwise have been inaccessible; discover new value creation opportunities previously unidentified
Competition	respond to global competitive environment
Time	speed up innovatory or learning processes; upgrade the efficiency of particular activities - for example, research and development (R&D)

2.2.2 De alio motivations for partnering in the target industry

In the previous section, I identified the key motivations for partnering according to previous research. Of the recent theories reviewed in this study, Powell, Pisano and Greis et al. concern directly the biotechnology industry partnering dynamics. When a de alio newcomer enters the biotechnology industry market, all five aspects of partnering motivations (assets, competition, barriers, time, risk) are present. Hence, I will now deepen the meaning of these for a de alio in biotechnology industry in specific.

In the following section, the interconnectedness of these motivations will be further clarified. To set the stage, Figure 2.6, depicts the key actors, partners and key roles of the networks involved in the dynamics according to the literature.

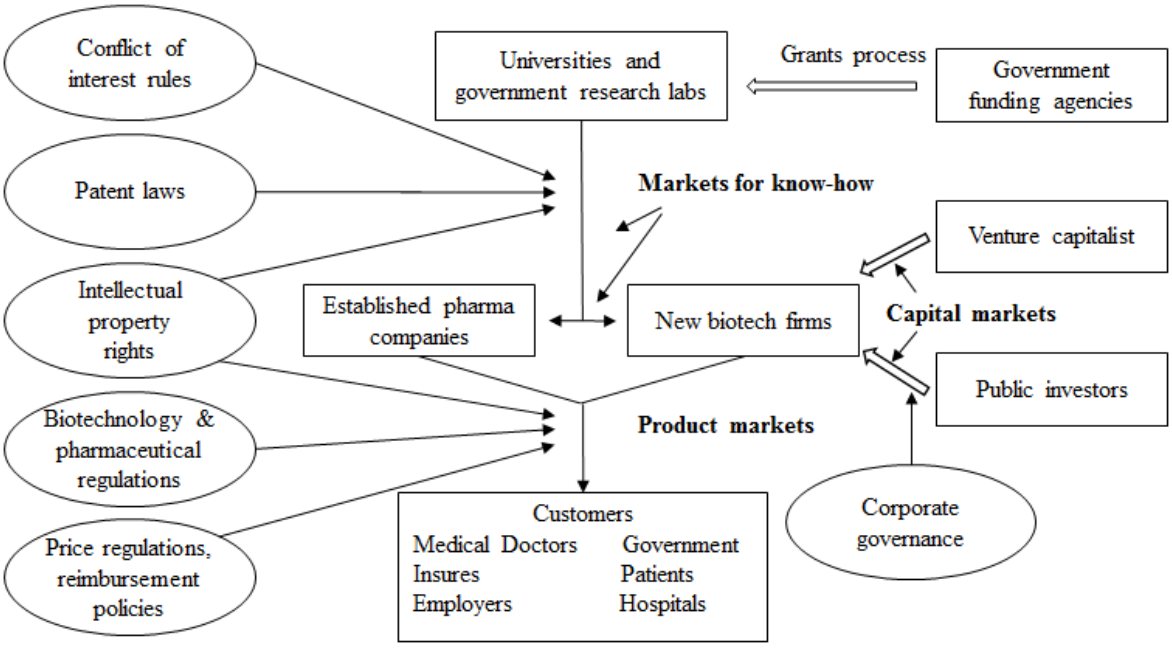

Figure 2.6. Key actors, partners and key roles of networks (Adapted from Pisano 2006, p. 81)

Firstly, Pisano (2006, p. 7) lists profound and persistent uncertainty as one of the key features of biotechnology industry, which calls for mechanisms for managing and rewarding risk. Furr et al. agree with Pisano by listing the target industry as one of the most high-risk compared to other industries (Furr, Dyer & Christensen, 2014). For a de alio, the biotechnology then, is an especially risky industry to enter. A partner may also prove invaluable to diminish the heightened risks of a de alio entry.

Secondly, in biotechnology, partnering has altered the nature of competition and hence the dense partnering networks itself may create a barrier to entry (Powell, 1998). Responding to barriers is an important motivation for a de alio, specifically in order to gain access to linkages with all the actors, customers, markets and opportunities.

Thirdly, in the described competitive setting, de alio is a newcomer who needs to find its place in the competitive landscape and respond to competition. It needs to do it very fast as there is a lot to learn and the window of opportunity needs to be borne in mind. Furthermore, Pisano agrees with Powell who argues that in biotechnology, competition is best regarded as a learning race (Powell 1998, p. 228, p. 230) and firms with experienced partners compete more effectively in high speed learning races.

Fourthly, this focuses the attention in the crucial time dimension, in other words, the fact that for a de alio entrant the time to learn is especially scarce. Pisano (2006, p. 7) also lists

the learning, and integration needs as typical to biotechnology industry. These are the rapid cadence of scientific progress which calls for mechanisms for cumulative learning, and the highly complex and heterogeneous scientific knowledge base which calls for mechanisms for integration across disciplines and functional areas of expertise.

Fifth, hence, experienced partners are even more important: the entrant must be able to learn even faster than its competitors, as it starts out without the assets of knowledge, access and networks inherent to the competitors, such as the university spin-off start-ups that were born in the biotechnology industry. Instead, the assets need to be created, or adapted from the home industry to the target industry. Securing assets is especially important concerning complementary assets related to developing new skills, creating and organizing new knowledge and internalizing skills and learning experiences of the partner.

One may add that Powell (1998)'s advice of not to focus too closely on the transactional details, but to promote the ability to do relational contracting, and maintain the relationships carefully, is especially useful for a de alio newcomer entrant. For de alio, developing target industry compatible capabilities of utilizing the obtained knowledge and maintaining relations and information flows (possession of capabilities for utilizing and building on new knowledge and developing relational capabilities and mechanisms through which information flows) stand out as especially important, since the home industry conventions and capabilities in partnering and using knowledge may not be directly applicable in the target industry. Similarly, networks, relationships and partnering arrangements may bear a different meaning and dynamic in the home and target industries.

Consequently, these needs direct the choice of entry strategy towards the partnering modes, and the choice between different partnering modes and partner types.

2.3 How to partner: Mode choice and maintaining partnerships

In this section, I will review the classic and more recent theories from the point of view of how to partner in the case context. This includes firstly the entry mode choice and secondly the ways to execute and maintain partnerships in a successful manner.

2.3.1 Mode choice and nature of partnerships in home industry tradition

In the classic theories, internalization and full ownership and strong control related modes are in a key role to such extent that full ownership was considered the default option as

discussed in relation to partnering motivations other options were considered in situations involving too much risk for full ownership. In that case, contractual agreements were chosen. According to Dunning (1995, p. 464), most contractual arrangements were considered as market transactions and not partnering as such - even in situations in which there was some element of a continuing and information sharing relationship between the participants.

Share and minority equity partnerships were non-preferred due to loss of control. Dunning argues that the traditional ideas of partnerships:

> *viewed the boundary of a firm as the point at which its owners relinquished de jure control over resource harnessing and usage; and, to a large extent, this boundary was thought to be coincident with a loss of majority equity ownership. It is not surprising, then, that, for the most part, minority joint ventures were regarded as a second best alternative to full ownership. (Dunning 1995, p. 464)*

This reflects the locus of activity, resource use and innovation being inside the firm.

The entry mode choices and explanations according to the major paradigms and theories are summarized in Table 2.2. The table shows clearly how the full ownership modes are the preferred and aimed at. The factors limiting ownership are low monopolistic advantages, high uncertainty and low transaction specificity of the assets or low internalization advantage. In these cases, contractual modes such as licensing and export modes are recommended. It is quite evident that joint ventures are considered marginal.

Table 2.2. Classic theories of entry mode choice, adapted from Sharma and Erramilli (2004, p. 4)

Paradigm	**Entry mode choice theory**	**Explanatory constructs**	**Entry mode choices and explanations**	**Prominent studies**
Market imperfection paradigm	Hymer's Theory	Monopolistic Advantage and degree of Market Imperfection	Foreign direct investment (FDI) mode is chosen if the degree of Market Imperfection is high. Otherwise, licensing is chosen	Hymer (1976); Buckley and Casson (1976); Teece (1980)
	IPLC Theory	Life Cycle Stage of the Product	Export mode is chosen in the earliest stage and FDI mode is chosen during the later stages	Vermon (1966); Poh (1987)
Behavioral Paradigm	Internationalization Theory	Market commitment and	The firm enters into a target country through indirect exporting and	Johanson, J & Wiedersheim-Paul (1975);

		Market Uncertainty	gradually switches over exporting through independent representatives, sales subsidiary and wholly owned subsidiary mode with the reduction of its market uncertainty	Johanson and Vahlne (1977); Johanson (1990)
Market Failure Paradigm	Internationalization theory	Firm-specific knowledge and the degree of Market Failure	FDI mode is chosen if the degree of market failure is high. Otherwise, licensing is chosen. Joint venture and export modes are also explained by the modified framework	Buckley and Casson(1976, 1998); Buckley (1988); Hennart (1986); Hennart and Park (1993); Chen and Hennart (2002)
	Transaction Cost Theory	Degree of Transaction Specificity of an asset	Higher control mode is chosen if the degree of transaction-specificity of an asset if high. Otherwise, a lower control mode is chosen	Anderson and Gatignon (1986); Anderson and Coughlan (1987); Coase (1937); Klein, Frazier and Roth (1990); Erramilli and Rao (1993)
	Eclectic theory	Ownership-Advantage (O), Location-Advantage (L), and Internalization-Advantage (I)	Export mode is chosen if 'L' favors home market. FDI mode is chosen if 'L' favors target market and the 'I' is higher. Licensing mode is chosen if 'L' favors target market but the 'I' is low. Joint venture mode is chosen under partial market failure conditions	Agarwal and Ramaswami (1992); Brouthers and Werner (1996); Dunning (1980); Dunning (1995)

In the classic theories, the level of control is the most important factor and modes are classified and chosen based on that. The second important factor is the location of activities.

The most important activities are considered to be production and marketing. Classification by ownership and location can be seen in Figure 2.7. This reflects the highlighted importance of ownership, location and production and marketing activities in the classic theories – and the traditional manufacturing industries that gave rise to these theories. Later in this study, I will discuss the relationship with the empirical findings on the case company preferences.

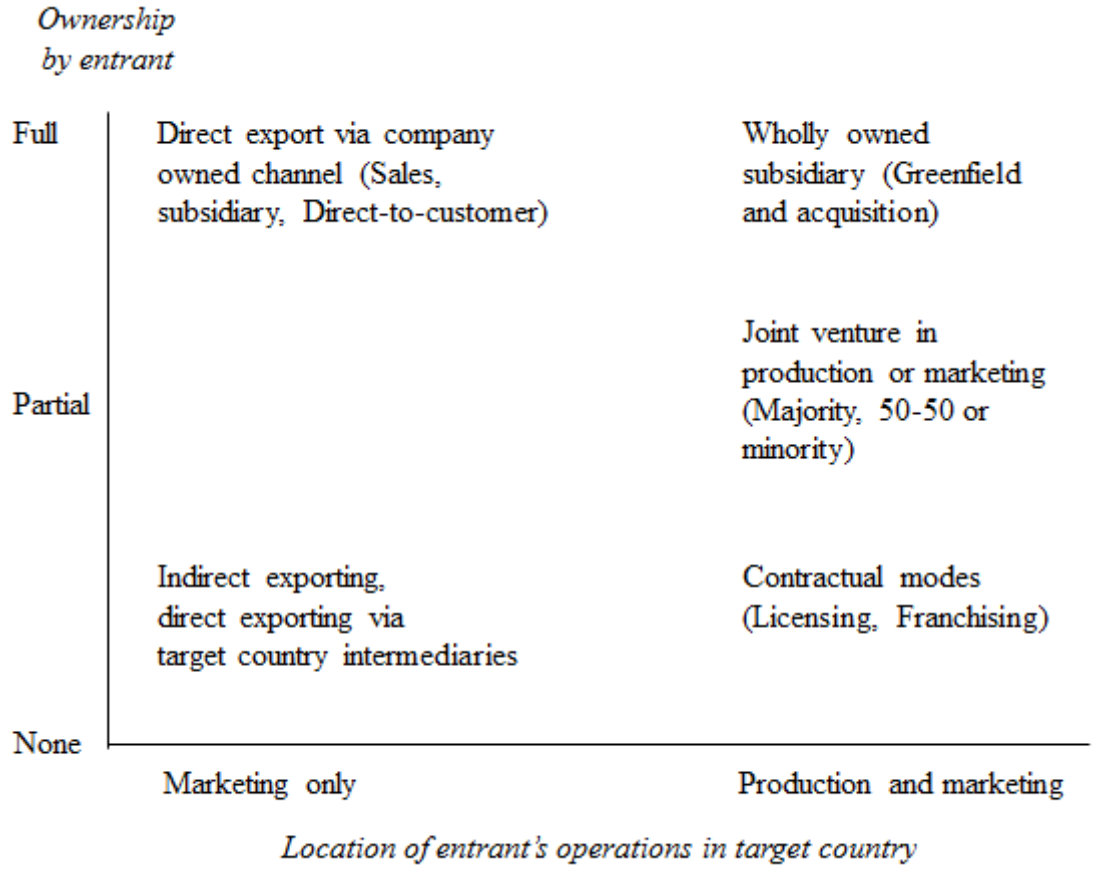

Figure 2.7. Categorization of entry modes by ownership and location.
Adapted from Sharma and Erramilli (2004, p. 3).

2.3.2 Mode choice and nature of partnerships in target industry tradition

The complete change of perspective, preferences and meanings of partnering taking place in the business logics is visible in the recent theories. Partnering modes are in a key role and the mode choice is based on a wide array of modes utilized simultaneously in order to create a varied and heterogeneous portfolio of collaborations. Also, even contractual transactions now include a more collaborative atmosphere than before and may include aligning business models (Powell, 1998).

On the other hand, ownership is no longer considered necessary in order to extract the benefits of an asset (Powell, 1998). However, although partnering is considered the default option, in the case of core competitive advantages full ownership is necessary. Chesbrough & Schwartz (2007, p. 57) advice companies to carefully classify their capabilities into core, critical and contextual and partner accordingly. Core capabilities refer to the key sources of company's distinctive advantages and with them in-house R&D is best. Critical capabilities are vital to the success of the complete product or service offering in the market, but are not core capabilities of the firm. In this sphere, partnering should happen on a win-win basis, which means aligning business models so that when one partner executes their model well, the other benefits and vice versa. Contextual capabilities are needed to complete the offering but provide little of the differentiation or added value and hence the company should switch to another partner if one is not performing. Chesbrough & Schwartz (2007) argue that critical capabilities partnerships bring the most added value, while companies usually should not partner at all on their core capabilities or the partnering would have very special conditions. Dunning (1995) agrees stating that on existing competitive advantages inter-firm cooperative arrangements should be controlled.

The risks are also perceived differently in the recent theories. Dunning argues that partnering is usually considered as a trade-off between losing part of the control in order to gain the perceived benefits of partnering. Nevertheless, the risks involved in losing part of the control are balanced by engaging in relationships "based upon a commitment, on the part of each party, to advance the interests of the alliance; and upon mutual trust, reciprocity and forbearance between the partners" (Dunning 1995, p. 470). Furthermore, in the recent theories, full ownership is considered a risky option, while in a long-term, trust-laden partnership the companies can enjoy many of the benefits of in-house modes without the risk, bureaucracy and other in-house disadvantages. In networks of this kind, there is an extra advantage for the companies operating as network moderators, as they get to enjoy the advantages of arbitraging complementary added value activities. These are the (quasi-) internalization (I) related advantages of alliances identified by Dunning (1995).

Furthermore, the mode corresponding to the asset-seeking partnering motivation may be R&D collaboration, or other cooperative venture mode. Similarly, according to Dunning, the mode corresponding to the overcoming barriers (access) partnering motivation may be foreign direct investment (FDI), minority owned joint venture or non-equity arrangements that are intended to gain speedy entry intro unchartered and unfamiliar territories. Also, the

mode corresponding to the time dimension of partnering motivations is cooperative ventures when aiming at speeding up innovations; and minority joint venture or non-equity arrangements when the motivation is a fast market entry (Dunning 1995, p. 469).

However, Powell (1998) and Pisano (2006, p. 162) point out that the benefits of partnering are not automatic nor results only from the mode choice or contractual conditions. They remind that the benefits depend on partnering capabilities of each of the partners and of the execution of the partnership project. Writing on business development deals such as alliances, licensing agreements and partnerships, Pisano states that:

> *doing a deal signals potential; whether value will ultimately be created depends on the execution of the project. Deals alone can never create value. They can only (if properly structured) unlock value that exists and enable value capture. [...] Ultimately, value creation and capture are what matters. Pisano (2006, p. 162)*

Similarly, according to Powell (1998), biotechnology companies need both experienced partners and the ability to absorb knowledge in order to succeed in the competition which is best regarded as a high speed learning race. In my interpretation, this practically emphasizes that access to knowledge is of little use, if the company does not know how to absorb knowledge or how to utilize it. Peng (2001, p. 812) agrees with Powell (1998) that capabilities to learn from partners may be a tacit resource underlying a firm's competitive advantage. Powell (1998, p. 233) calls developing these capabilities "learning how to learn", and emphasizes that it is crucial for companies both large and small to learn from collaborations and construct a portfolio of collaborators that provides access to both the emerging science and technology and the necessary organizational capabilities. This is considered so important that most biotechnology companies have individuals working as network managers (Powell, 1998). Moreover, according to Powell (1998), the varied portfolio is better, as "Heterogeneity and interdependence are greater spurs to collective action than homogeneity and discipline" (Powell 1998, p. 238). Powell (1998, p. 231) maintains that a firm's portfolio of collaborations is a resource, an important part of a firm's value and a signal to markets, as well as to other potential partners, of the quality of the firm's activities and products, because nowadays in high-technology innovation centred industries such as biotechnology, innovation happens in networks of learning, rather than individual firms. This ability to absorb knowledge encompasses two parallel and equally necessary kinds of learning goals. Firstly, learning *from* collaborations and secondly, learning *how* to collaborate.

Considering first the learning from collaborations, Powell (1998, p. 236) emphasizes that it requires both of the two aspects a) access to knowledge and b) possession of capabilities for utilizing and building on such knowledge. According to Powell (1998, p. 231), the capability building is a two-way dynamic: internal capability is indispensable in evaluating the ideas or skills developed externally in the network, and on the other hand, the network serves for testing the internal expertise and learning capabilities.

Then considering the second aspect, in order to learn how to collaborate in a given context, it is important to balance both of the principal foci of the collaboration theory field. According to Powell (1998, p. 229), the first one is contractual, that is, transaction, negotiation and mutual exchange of rights. This includes considerations whether common assets are being pooled or different resources traded, which party retains what control rights, what stage of development a project is at, and whether some form of ownership is involved. The second focal point is processual, that is, developing relational capabilities and mechanisms through which information flows. This includes continuous communication and organizational learning, extent to which the collaboration is embedded in multiple ongoing relationships and the emergence and deepening of the relational capability of organizations over time.

The contractual focus is more linked with the classic points of view on partnering and entry modes which depicts the how to collaborate as an event or choice, while the processual focus is more recent in the market entry literature as well. As Powell (1998, p. 229) speaks of the general condition of the collaboration, he warns that focusing too closely on the transactional details risks "missing the boat": the ability to do relational contracting, and the process of maintaining a relationship matters. In a similar vein, Dunning (1995, pp. 468-470) notes that since the 1980s, the great majority of inter-firm associations have tended to be less formal in structure and are more likely to rest on a consensus of agreement between the participants based upon a commitment of each to advance the interests of the alliance and upon mutual trust, reciprocity and forbearance between the partners. Extending Powell's argument, one may say that seeking a partnership, companies often concentrate too much on simply obtaining access to knowledge via conducting successfully the contractual aspect. However, that is only the starting point for the partnership and does not in itself guarantee the continuation of a successful learning curve.

Furthermore, certain types of partnering dynamics are typical especially in the target market, that is, biotechnology industry, and perhaps not so prominent in other industries, such as the home market (that is material industry) of the case company. One of these dynamics is the deeper and more multifaceted meaning of networks.

After having reviewed the theories on motivations and ways of partnering, in order to reflect the multifaceted nature of networking and partnering in the target industry, in the following Table 2.3, I will bring the motivations and processual ways of partnering together with the three key dimensions of the recent market entry theories, from the point of view of partnering and networks. The updated version of Dunning's eclectic theory (1995), is used as the basis, complemented by inputs from other, even more recent authors. This summarizing adaptation of also shows the compiled ways of using the partnership portfolio suggested by Powell (1998) to obtain competitive advantages, which in turn can be utilized to create and capture value. This compilation and extension shows clearly the processual nature of market entry into innovation centred industry such as biotechnology: the entry is much more than mode choice or a one-time event.

Table 2.3. Why and how to partner: summarizing adaptation of the eclectic theory and other recent theories

Intangible assets (ownership-related, O)	**Dimension**	**Author**
Knowledge of how to create partnerships in the target market	Articulating the business model, understanding others' business models, aligning business models with partner	Chesbrough & Schwartz (2007)
	Assessing own and others' capabilities and classifying: core, critical, contextual	
Knowledge of how to maintain partnerships in the target market	Network managers	Powell (1998)
	Aligning business models, building trust, synergies, Common goals	Chesbrough & Schwartz (2007)
	Subsequent partnership projects	
Capability to learn from partnering	Accessing to knowledge	Powell (1998); Dunning (1995)
	Ability to absorb, create, organize, disseminate, leverage and level knowledge in the organization	
	Internal capability to evaluate ideas and skills developed externally	

	Ability to use the network to test the internal learning capability and expertise	
Capability to learn how to partner	Contractual: Industry conventions on transactions, IPR, negotiations	Powell (1998)
	Processual: Industry conventions on relational contracting, mechanisms through which information flows, building synergies and trust	
Partnership portfolio	as a resource, providing access to both science and organizational capabilities	Powell (1998)
	as a signal to markets and partners	
Network moderator role	Dimension advantages of orchestrating and arbitraging complementary added value activities	Dunning (1995); Powell (1998)
Location specific variables (L)	**Dimension**	**Author**
Interplay of local, national, regional, international and global		Dunning (1995); Maine (2014)
Cluster advantages	Strong and balanced ecology of research centres, talented human resources, excellent transportation, communication and other assets supporting innovation	Dunning (1995); Maine (2014); Phene & Tallman (2012)
Distributor and parent company multinationality related advantages	Operational flexibility, more opportunities for arbitraging, production shifting and global sourcing, knowledge about international markets, taking advantage of geographic differences	Dunning (1995)
Quasi-internalization (I, internalization related)	**Dimension**	**Author**
Trust, forbearances, reciprocity and consensus advantages	Long term partnerships with subsequence, increasingly profitable partnership projects	Chesbrough & Schwartz (2007)
	Avoidance of search and negotiating costs, costs of moral hazard, broken contracts and protecting the reputation of the firm	Dunning (1995)
Substituting direct investments with partnering	Advantages of internalization without the inflexibility,	Dunning (1995)

	bureaucratic or risk-related costs	
Moderator role	Advantages of orchestrating and arbitraging of complementary value-added activities	Dunning (1995); Powell (1998)

2.4 Theoretical framework

In this literature review chapter, I have reviewed existing relevant theories and concepts on partnering and extended them as necessary. I have presented the key aspects (control and ownership meaning internalization, ownership-specific assets, locations) of the classic theories that correspond to the case company home market dynamics of traditional manufacturing and their reinterpretations in the more recent theory updates which correspond to the target market dynamics of partnering and innovation centeredness. Furthermore, I have combined the de alio diversification, industry life cycle and ambidexterity theories in a novel way and used this model to complement the market entry and partnering theories in order to cover the case context key aspects.

Moreover, I have presented the motivations for partnering in the classic and more recent theories by classifying them in five key categories: a) using, securing and obtaining assets, b) mitigating risk, c) responding to barriers and gaining access, d) time or speeding up and e) responding to competition. These were reviewed specially from the point of view of de alio entry to biotechnology industry.

Last, I reviewed the literature from the point of view of how to partner. This included two aspects. Firstly, the mode preferences presented in the classic and more recent theories and second, the processual ways and dynamics of conducting and maintaining partnerships in each set of theories.

Figure 2.8 combines the theories discussed so far from the point of view of why de alio needs to partner in this context and what are the partnering motivations and targets. De alio market entry factors are depicted in the first line. Combining the above mentioned contributions of Dunning, Greis et al., Chesbrough & Schwartz, Pisano and Powell, the partnering needs, desired benefits and motivations are depicted in the second line. Furthermore, the targets derived from the motivation theories and the biotechnology industry context specific theories are depicted in the third line of the graph.

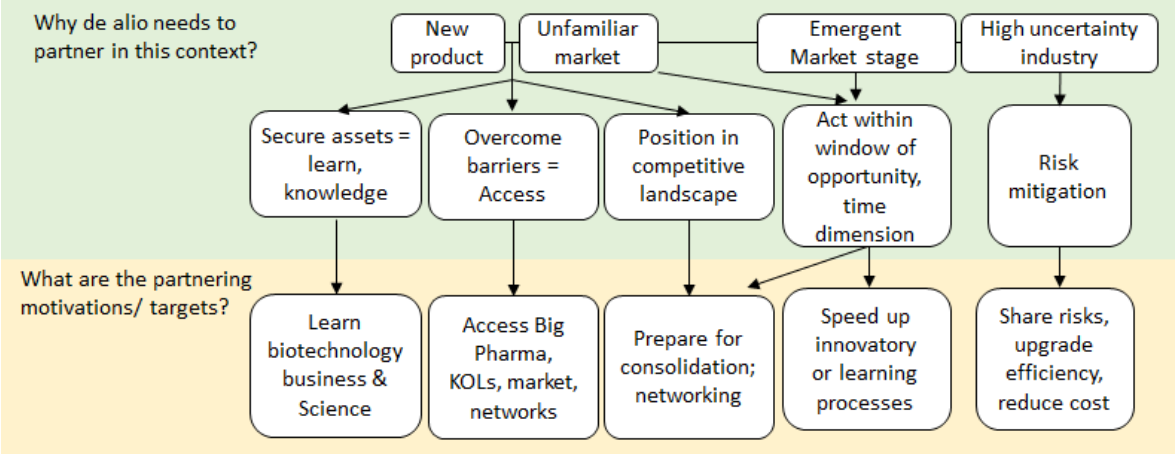

Figure 2.8. Summary of key theories on partnering needs, motivations and targets

In other words, in order to succeed in the de alio context, the company needs to secure critical assets, overcome barriers to access, and position itself in the competitive landscape to gain a foothold against the competitors endemic to the target market. Furthermore, considering the limited window of opportunity, in-house capability development as a response to these needs is too slow if at all possible. Partnering is needed to reach the goals that are not reachable alone/ in-house and partnering is a way to respond to all the above mentioned needs.

The theoretical literature analysed in the review creates an interesting starting point in the light of which to examine the entry strategy choice in the case context. Derived from the theories and case characteristics mentioned above, the theoretical framework of conceptualizing the commercialization, market entry and partnering strategy process is summarized in Figure 2.9. The case context is the starting point, from which the context-specific partnering needs stem. The needs are elaborated into motivations and targets for partnering. Then, the motivations and targets guide the choice of suitable modes and ways to partner. The partnerships together force a heterogeneous portfolio with different combinations of why, how and with whom to partner. The portfolio is then used both as a resource and as a signal to the others in order to obtain competitive advantages, to create and capture value. As the company establishes itself in the new industry, the context changes and therefore the needs also change, which means that the partnering decisions need to be revised at constant intervals, using the proposed partnering framework.

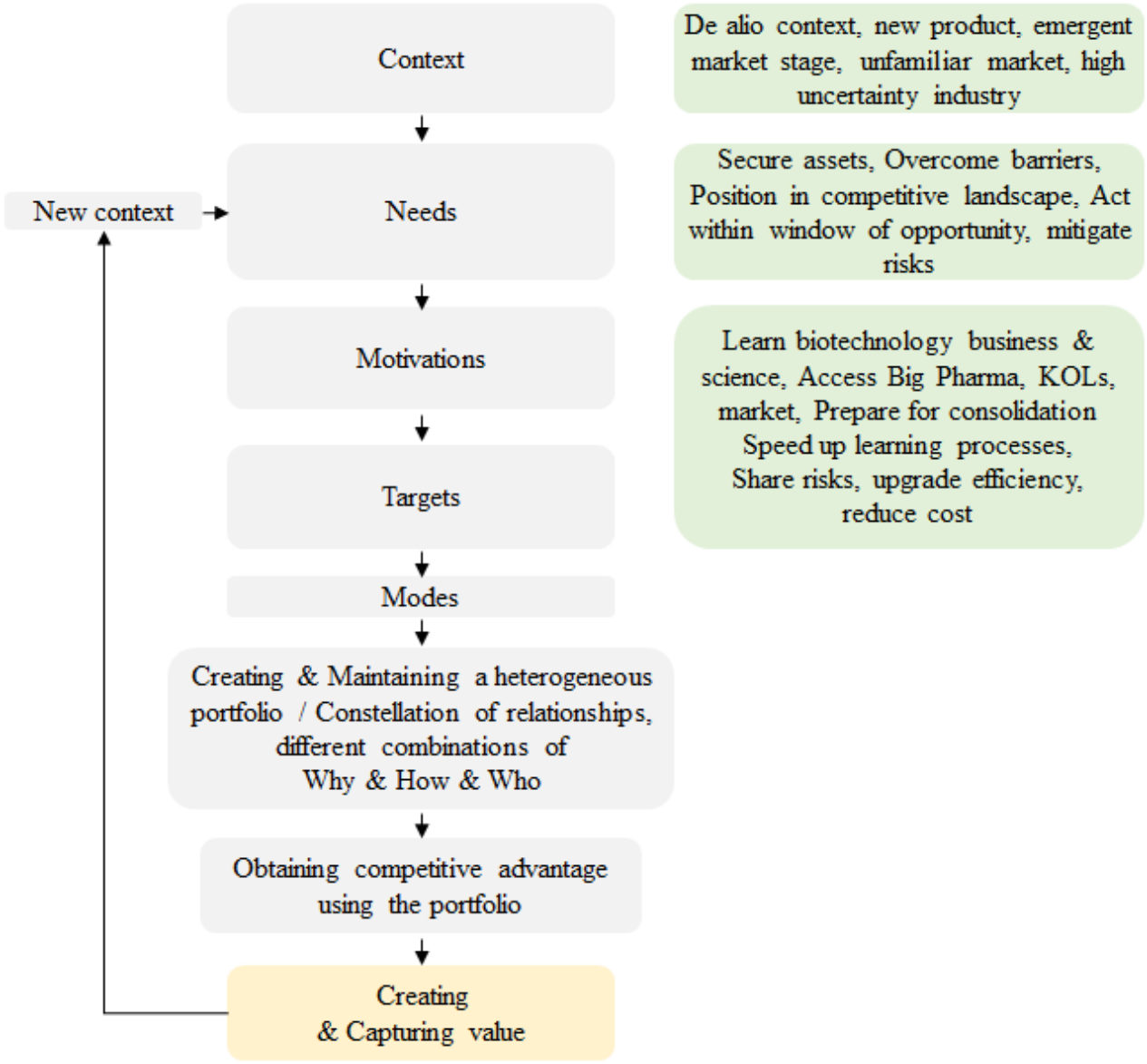

Figure 2.9. Theoretical framework on the partnering processes

3. METHODOLOGY

In this chapter, the general and specific research methods, materials and ethical considerations forming the basis of this study are discussed.

3.1 Qualitative research method

The chosen methodology to complement and correspond to the above mentioned theoretical framework and research context in the Thesis is qualitative research. This is because the main research problem asks how can companies manage the challenges of de alio market entry by forging partnerships, and the research questions focus on with whom, why and how to partner in the case context. This point of view indicates a processual and interpretive perspective, to which qualitative research methods are suitable (Eriksson & Kovalainen 2008, 120).

While considering the methods, the reader is also advised to take into consideration the distance factor of qualitative research methods, that is, in order to reach high quality results, the researcher needs to diminish the distance with the participants (as opposed to quantitative research). According to Eriksson and Kovalainen (2008, 57), there are three factors to be considered. First, that participants are the best experts; second, the aim is to include the participant's voice; and third, the researcher is the primary instrument whose language, cultural and individual characteristics form a lens through which the research process is mediated to the audience.

3.1.1 Single intensive case study

The conceptual implications of the research context and research questions suggest that the specific qualitative research method type appropriate for the research is case study. This is because the case study emphasizes detailed and holistic knowledge of a phenomenon and is based on multiple empirical sources rich in context (Eriksson & Kovalainen 2008, p. 117).

Furthermore, of the various different case study methods, single, intensive type of case study is best for understanding the process of formulating the market entry strategy and choosing an entry mode in a very specific context. This permits studying the case more in depth than with multiple cases, learn how a specific case works and analyse whether or not it is unique, critical or extreme (Eriksson & Kovalainen 2008, pp. 120-121). The case study also implies

that the case has a beginning and an end, or, boundaries (Eriksson & Kovalainen 2008, p. 117). The boundaries of this case were drawn from the case company meeting with the research project team in November 2015 when the market entry investigation started and the formulation of the market entry strategy began. The end of the research timeframe is placed in September 2016 when the research project data collection was finalized. Secondary materials were included from the time immediately preceding and during the project, for example market analysis reports, media and background materials from the company. The focus is a strategy viewpoint which draws the scope boundary of the case.

The single case also provides the opportunity to present a case that motivates further research by offering information that may help to complement or sharpen the existing theories in the field, or inspire the further research of a field relatively little studied (Siggelkow, 2007, p. 21). In this context, that means multinational companies entering de alio (diversifying) to the biotechnology or other partnering centred industries, or in more general terms, the triple novelty of multinational companies commercializing a new innovative product in an unfamiliar, emerging market. A further advantage of this type of study is that it illustrates the real-life dimension of the phenomenon studied and helps to keep theory grounded with a real-life situation (Siggelkow, 2007, p. 21), putting the case itself in the centre of the research (Eriksson & Kovalainen 2008, p. 121).

Considering the alternatives, creating a comparative set-up or embark on an extensive/multiple case study (Eriksson & Kovalainen, 118, pp. 122-123) proved complicated, as other potential companies in the same context were not available. This was due to the fact that an MNC attempting a de alio (diversifying) entry to an emergent market by commercializing a new innovative product in an unfamiliar, non-neighbouring industry with very different business logic, represents a somewhat extreme and unique case. On the other hand, a comparative case study of two or more very different kinds of firms with different approaches to market entry to biotechnology industry would be very interesting but proved too large a research endeavour for a Master's thesis. However, this indicates possible avenues for further research in the area.

3.1.2 Semi-structured interviews

The qualitative research method chosen to produce the primary data for the case study research is interview, complemented by the secondary data of company documentation, media and social network analysis (McCarthy et al, 2007) to produce a balanced view of the

commercialization process studied. In addition, interviews were also used to focus the research: the research process was started by reviewing literature based on the preliminary research problem statement, which was commercialization strategies for new products in biotechnology, in situations which involve the creation of a new market. Furthermore, in the two preliminary focusing interviews and group discussions with the company representatives, the researcher could further specify the problem statement, and focus it on partnering.

The research questions and context of the given case require the use of interviews for mainly two reasons (Eriksson & Kovalainen 2008, pp. 80-81): firstly, for collecting information that is not available in a published form and secondly, the aim is to collect the interviewees' experiences and viewpoints on the process. In order to instil this information, I consider semi-structured interviews the most appropriate method for the task (compared to structured or unstructured ones). This is because they can be utilized for both "what" and "how" types of questions and produce systematic and comprehensive information for the use of content analysis, yet leaving room for items that arise from the informant's experience and interview situation (Eriksson & Kovalainen 2008, 82-83).

However, interviews as a source of data imply the possibility of bias as the interviewed individuals may tend to rationalize the activities afterwards, or exaggerate their own contribution. This risk was diminished by interviews being conducted while the decision-making process unfolded, not only afterwards. Furthermore, analysing also the secondary data (that is, company documentation, media and social network analysis data produced during the strategy process) should balance the risks of the first kind. Interviewing a sufficient sample of persons ought to balance the risk of the second kind by utilizing data from various sources.

3.1.3 Content analysis

The data analysis was carried out by using content analysis, which focuses on themes and patterns across the data (Eriksson & Kovalainen 2008, 187-188), hence helping to answer the questions of how can companies manage the challenges of de alio market entry by forging partnerships, and with whom, why and how to partner in the case context. The content analysis involves a coding system developed from the basis of the material itself (as a contrast with pre-planned coding; Eriksson and Kovalainen 2008, 129). The specifics of how the data analysis was carried out by using content analysis is further discussed in Section 3.2.4.

3.2 Data sampling, collection and analysis methods

In the following subsections, the methods of data sampling, data collection and data analysis of research at hand are discussed in detail.

3.2.1 Research context implications

The context of this study is manifold: 1) MNC 2) material manufacturing firm 3) entering de alio into another, non-neighbouring industry 4) in a segment of the biotechnology industry 5) in an emergent phase of the life cycle 6) with a new innovative product. The context of the research requires the researcher and the reader to consider its scope and implications. As stated earlier, the research aims to be of use especially for the team working with the innovation and the MNC management making decisions about market entry strategies. Hence, the strategy approach will be adopted in the research. For this reason, many other points of view shall remain outside the scope of the research but indicate possible avenues for future research.

The context of a manufacturing firm implies that the results may not be applicable to service firms. In the same manner, the findings related to the biotechnology market may or may not be generalizable to other markets, and comparing these lies outside the scope of this study. Furthermore, this research concentrates on the choices of a MNC, which means that the results will not be directly applicable to a smaller firm or a less internationalized one, whose resources are of different size and type.

3.2.2 Sample

Apart from scientific articles and general background material, the case material of the research includes primary data and secondary data.

The primary data is in the form of material produced specifically for the purposes of this research, that is, interviews. In order to identify the interview sample, the snowballing method was used in order to find hidden populations in a context where the sample size and boundaries were hard to define: an emerging fragmented market segment and complex context, which, furthermore, required several kinds of informants. As no public sources exist about who are the members of the network or group, the interviewees involved in the dynamic were used as informants to express who else could provide the researcher with the necessary material. Hence, the research group identified the first interviewees, who

introduced the second group who introduced the third group until saturation. Limitations of the method may arise due to choice of initial interviewees and possible biased sample, as interviewees' choice of next interviewees is limited to those they know and whom they wish to recommend due to their respective reasons. These limitations can be alleviated by choosing a diverse initial sample. (Morgan, 2008; Heckathorn, 1997; Erickson 1979).

In other words, three factors guided the choice of interviewees: Firstly, the snowballing method, secondly, because the individuals are members of different parts of a specific network and thirdly, they participate in certain processes. More specifically about the nature of the interviewees: one third of the interviewees are women (8/24), the interviewees represent different ages from young to senior and various European cultures and nationalities. All in all, six interviews were conducted in English and the rest in Finnish. The occupational backgrounds of the interviewees include managerial and other positions in the case company (11/24), other companies of the target industry (8/24) and universities (5/24). Also, their field of specialization varies from natural sciences to engineering and business. The detailed list concerning the profile of the interviewees is not included here due to issues of anonymity and recognisability which are further discussed in Section 3.2.5.

The secondary data, on the other hand, consists of various sources. Documentation was provided by the case company during the process (such as strategy documents, market analysis reports, white papers and meeting notes). Furthermore, press releases and media coverage were available but scarce, as the commercialization of the innovation was not made public until sometime into the project. For the social network analysis, data was collected from the materials of an international conference on the target market segment and from public online sources.

The secondary data (strategy documents, meeting notes and press releases) were chosen according to their ability to provide information about how can the company manage the challenges of de alio market entry by forging partnerships and with whom, why and how to partner in the case context. Online coverage (in Finnish and English) was searched using as search terms the case company name, product name, and industry name. For the social network analysis purposes, online data was searched using the names of the organizations in question.

The limitations of data included that due to confidentiality issues, the researcher was not granted access to data identifying the partners and networks of the case company in the target

industry. Furthermore, for the same reasons, the case company did not grant interview access to their customers nor partners, which causes the researcher to render these aspects as suggestions for further research. Similarly, there was no access to emails nor actual company meetings or situations for observation. Nevertheless, lesser-scale, secondary observation was made during interviews, meetings and one full day workshop of the research team with company representatives.

What comes to the ethical aspects of the data sample, in order to answer the research questions properly and to construct a case study, close cooperation with the case firm was necessary to gain access to first-hand material and various types of data. In this context, it is due to inform the reader that in order to render the research possible, during the Thesis research process, I worked as Research Expert for an Aalto University research project which included a remuneration. I will further discuss the ethical considerations of the study in the section 3.2.5.

3.2.3 Data collection

Furthermore, the data collection of interviews and documentation was done in the following way. In the project, we conducted altogether 25 interviews in Finnish or English between December 2015 and June 2016. Each informant was interviewed once (except for one informant who was interviewed both in the early and the late stage of the project).

The interview length varies between approximately 45 and 90 minutes. The majority of the interviews took place face to face, the minority via telephone or Skype. In the interviews, between one to three research team members and one informant were present at a time. Furthermore, the interviews took place in meeting rooms and similar spaces at the case company and other organizations (except for one interview in a home setting). We also recorded one group discussion between the research team and company representatives as this formed an informal group "interview" where all participants could ask each other questions. In the group situation, a PowerPoint presentation functioned as a thematic outline and stimulus material. Furthermore, one full day workshop was organized with the company team, but was not recorded. The interviews and the group discussion were recorded and transcribed for analysis, using the word-for-word -method, as the more detailed method intended for discourse analysis (Eriksson & Kovalainen 2008, p. 85) was not necessary. Observations and notes were made during the recordings concerning the non-auditive behaviour of informants.

On the other hand, secondary data was collected from various sources. Company internal documentation was received from case company and public documentation was obtained via internet. Media coverage was collected by accessing internet. Network analysis data was obtained by research team members participating the target industry conference and combining it with internet sources.

What comes to keeping the research material and data, the full set of interview recordings is kept by the research project. A copy of part of the recordings package, as well as transcribed interviews, documentation collected from public sources and company internal sources are kept by the researcher.

3.2.4 Data analysis

In the first phase of the data analysis, the primary information was organized into a case record with the help of a software, electronic and paper files to collect all empirical data together into a package (Eriksson & Kovalainen 2008, p. 126). The package was organized following a thematic logic derived from the research questions asking with whom, why and how to partner in de alio context.

As the chosen analysis method is content analysis, the following analysis phase was coding, for which a data-driven coding system was developed from the empirical data collected (as opposed to pre-planned coding systems). This inductive-oriented strategy allows the researcher to more directly interpret the themes and patterns extracted from the material (Eriksson & Kovalainen 2008, 129). The practical work was carried out using the software named Atlas.ti 7.

In the next phase, the resulting codes were further grouped and organized to find patterns in the data set and to construct themes. The relations of the themes to each other were then analysed. The themes most central to the research questions were identified and the justifications for this choice were documented. The most central themes were then interpreted in the light of identifying the key partners, needs, motivations and corresponding possible modes for partnering, along with the processual view of how to partner and maintain partnerships.

Furthermore, comparisons of views presented by different actors in the case context were made with the help of organizing the data into tables and figures, in order to highlight the key aspects, similarities and differences. Also, the primary data views were compared with

those expressed in the existing literature. Then, conclusions were made of the significance and meaning of these similarities and differences.

On the other hand, the data collected for the purposes of social network analysis was organized using spreadsheets and then visualized and analysed using the software named Gephi 0.9.1.

Subsequently, the results and conclusions of the data analysis were compared with the existing theoretical knowledge and frameworks of partnering, market entry strategy and entry mode choice, plus complementary theories mentioned in the literature review in chapter 2. This was done in order to conclude if this case supports or challenges the existing theories about partnering and choosing the entry strategy, in which aspects and why. Finally, suggestions for future research were made and managerial implications explicated according to the insights of this analysis.

3.2.5 Ethical considerations

Conducting research involves an array of ethical issues, varying in each study according to the setting. In the following, I will discuss the ethical considerations involved in this study, such as informed consent, anonymity, confidentiality, relationship and distance with the researched, and sponsorship.

Firstly, informed consent was obtained from each interviewee in connection with the invitation to participate and again in the beginning of each interview. As suggested by Eriksson & Kovalainen (2008, p. 71) basic information of the study, such as the purpose, recordings, basic procedures, roles and identities of the research team, the university and the sponsoring company, the use and future use of the data, anonymity and voluntary participation were made available in connection with asking for the consent.

Secondly, anonymity of both the informants and the case company needed to be upheld in the study. Anonymity means keeping the identity of the participant hidden, but different variations in the degree of anonymity exist (Eriksson& Kovalainen, 2008, p. 73, p. 302). In this study, personal information and the identity of the informants have been carefully withheld both during the research process (in all communications such as live conversations and textual exchanges) and in this research report. Identity details have not been marked where it is not absolutely necessary. Furthermore, in the project, the identities and research records of the participants have been stored in files to which no unauthorized access is

possible due to utilizing electronic accounts with usernames and passwords, and locked physical locations.

An obvious exception to the anonymity rule have been the group conversations, meetings and the workshop, in which the participants have all been employees of the case company and aware and consenting of the non-anonymity of the exchanges during these events, due to receiving previous information via email. They have also identified themselves to the other participants in the beginning of the conversations. However, the identities of the participants have only been known to the other participants of the same event and have not been disclosed to other persons.

In the research report, I have upheld the anonymity of the informants by using various techniques. To start with, I have disclosed the profiling details of the informants (in the Sample and Data Collection sections, chapter three of this report) only to the extent necessary for the reader to be able to assess properly the nature and extent of the data sample of the research. I have prioritized anonymity in those cases where these two principles needed to be reconciled. In general, the information of who was interviewed (not even the mere list of informants) for the study was not disclosed to anyone outside the university research team and the interview recordings literation company employees, bound by confidentiality agreements.

Moreover, I have screened beforehand the information to be disclosed in this report and other exchanges in order not to reveal details or combinations of details which could jeopardise the anonymity of an informant. This was especially important in order not to violate the trust relationship or cause difficult situations for informants presenting critical views (Eriksson& Kovalainen 2008, p. 66) while the research was conducted in coordination with the management of the company.

Furthermore, in the report I have used pseudonyms such as “interviewee A” of the informants and “Department A” of their place in the organization. Other types of pseudonyms such as invented names would have offered other advantages such as a less distanced, real-life feel and may have been easier to remember for the reader. However, I chose to use alphabetical letters due to the fact that pseudonym names tend to provoke interpretations by the reader, such as the gender or ethnical identity of the informant. For example, the female gender represented only one third of the sample and it became obvious that by combining the gender information with the information disclosed in the report would have made it possible for

certain readers within the sample to identify other participants. The same applies to ethnical groups that represent for example only one quarter of the sample. In the case of female informants of such an ethnical group, the dilemma of name pseudonyms would be even more obvious. Also, I did not consider using names of the other gender or other cultural/ethnical groups a viable option, as they would have given the reader a distorted view of the data.

On the other hand, the anonymity of the case company was upheld in the research report by utilizing terms such as "case company", "parent company", "venture" and "department A" instead of the real company and department names, and the more general terms "target market" "target industry", "biotechnology industry", "home market", "home industry" and "material manufacturing industry" instead of the exact market segment names. Furthermore, in the social network analysis, the names of network participants were replaced by numbers and letters functioning as pseudonyms. I considered that this anonymity was possible to achieve without causing distortion or difficulty for the reader while presenting the case study.

Thirdly, in qualitative research, it is often necessary to diminish the distance between the researcher and the researched in order to provide high quality results, yet there a various possible levels of distance when it comes to the relationship between me as the researcher, and the researched (Eriksson& Kovalainen 2008, p. 57, p. 65). The study required getting involved for example by acting as a facilitator in the processes taking place in the workshop. However, during the whole research process, I decided to withdraw in those occasions where the role of facilitator could have turned into active participation in the decision-making or providing answers to business problems when it was clear that the answers and decisions need to come from the researched. Similarly, the distance between researcher and researched was diminished when engaging in interviews, or case company meetings and the workshop. However, I did not work or otherwise spend prolonged periods of time with the researched and the methods did not include observation or participation as such.

Fourthly, in order to render the research possible by obtaining access to the case data, I participated in a university research project which included a remuneration from the university. The case company was sponsoring the project but did not attempt to affect (Eriksson & Kovalainen, 2008, p. 66) my research plan or methods apart from requiring that the case company remain anonymous. Due to confidentiality issues such as confidentiality agreements with partners, not all company data was accessible, as discussed in the Sample

section of this chapter. A company employee conducting similar research might have had access to the data mentioned, yet this would have created a different kind of research setting and relationship with the researched, with other kinds of ethical issues to be considered.

4. ANALYSIS OF EMPIRICAL FINDINGS

In this chapter, the case context, home and target industries as well as the de alio company dynamics are analysed, followed by the main motivations and ways how to partner with the identified key partner groups in the biotechnology industry.

4.1 Case context

In this section, I will present the empirical findings concerning the case context factors that affect the partnering strategy. To start with, the commercialization decisions made by the company that create the basis of the entry and partnering strategy choice are depicted in Figure 4.1. As a result of these decisions, the innovation had been set up as an internal start up aiming to commercialize the innovation in an unfamiliar industry. The product was offered as a material.

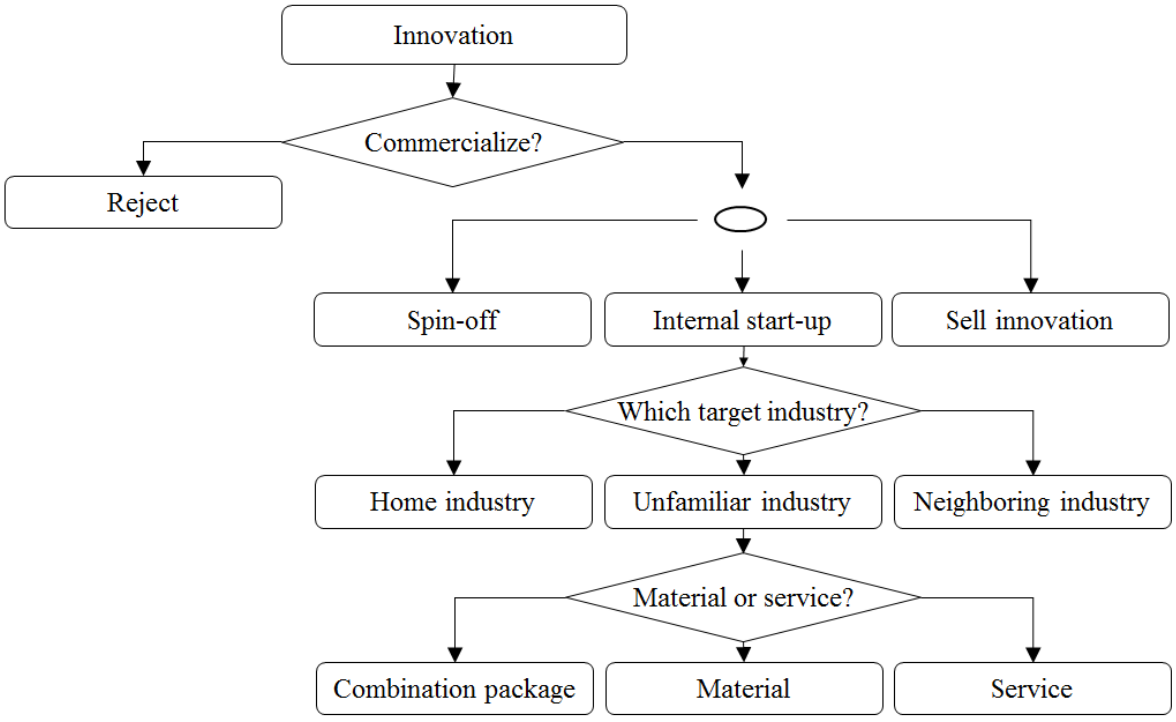

Figure 4.1. Flowchart of commercialization decisions

4.1.1 Characteristics of the home industry

The home industry of the parent company is the material manufacturing industry. According to the findings, the core business logic of the parent company and the material industry are characterized by big investments, business-to-business activities based on large volumes and stable customer relationships, while readiness to invest or risk is relatively small and easy

wins are expected. In the 1990s large material companies took risks and bought out companies but nowadays have become more risk-avoiding in their investments, especially when they do not know the industry where they do business. Traditionally, these companies have wanted to execute activities in-house and control but this is changing towards partnerships and joint development agreements. For a listed company, the owners' expectations also reinforce the aversion of risk. What comes to innovations, according to the case company, incremental innovations (instead of radical or disruptive) "are the DNA" of the company.

Furthermore, according to the findings, networks and identities are strong inside the home industry, but there is little networking between different industries and the employees' backgrounds are rather homogenous. The small amount of connections to other industries may make it a challenge to diversify to another industry. However, despite being a somewhat typical incumbent in its home industry, the parent company is perceived by some informants as more prone to try new innovations than some of its peers. As one informant describes, the traditional companies very rarely develop the new ideas themselves, which may be due to the new ideas being outside the competence of the parent company, and due to the resources of the parent being bound elsewhere. Despite this, the parent company has chosen to tackle the challenge.

The home industry is an established industry where incumbents play in the home market or neighbouring markets, exploiting existing monopolistic advantages and prefer control ownership and in house activities. Investment are big but the risks are thoroughly calculated. Geography matters in the sense of choosing locations but the level of internationalization of the incumbents is high. This features also coincide in many ways with the five classic theory factors presented in 2.1.1.

4.1.2 Complexity of the target industry

In the target industry, on the other hand the case company needs to address both the general complexity of the market and the specific de alio newcomer challenges of lacking knowledge, access and networks. Furthermore, one case company interviewee felt that even inside the biotechnology industry, there are easier segments than the target segment. The informant felt that in a certain other segment, for example, even receiving information from customers was easier, and selling was more straightforward. In the target segment of this case, marketing

the product was more complex and for example required scientific research results backing the product.

Moreover, an experienced industry analyst describes the industry as virtually integrated. On one hand, the deep science and inventions are the basis of product development. Innovations concerning the human physiology are fuelled by competition, little time, big risks, big upsides and venture capital. On the other hand, the big distributors and the Big Pharmaceuticals form the more typical marketing and sales function of the industry, taking the products to doctors and hospitals.

Based on the analysis of the empirical data, the dynamics of the target market are summarized in the Figure 4.2:

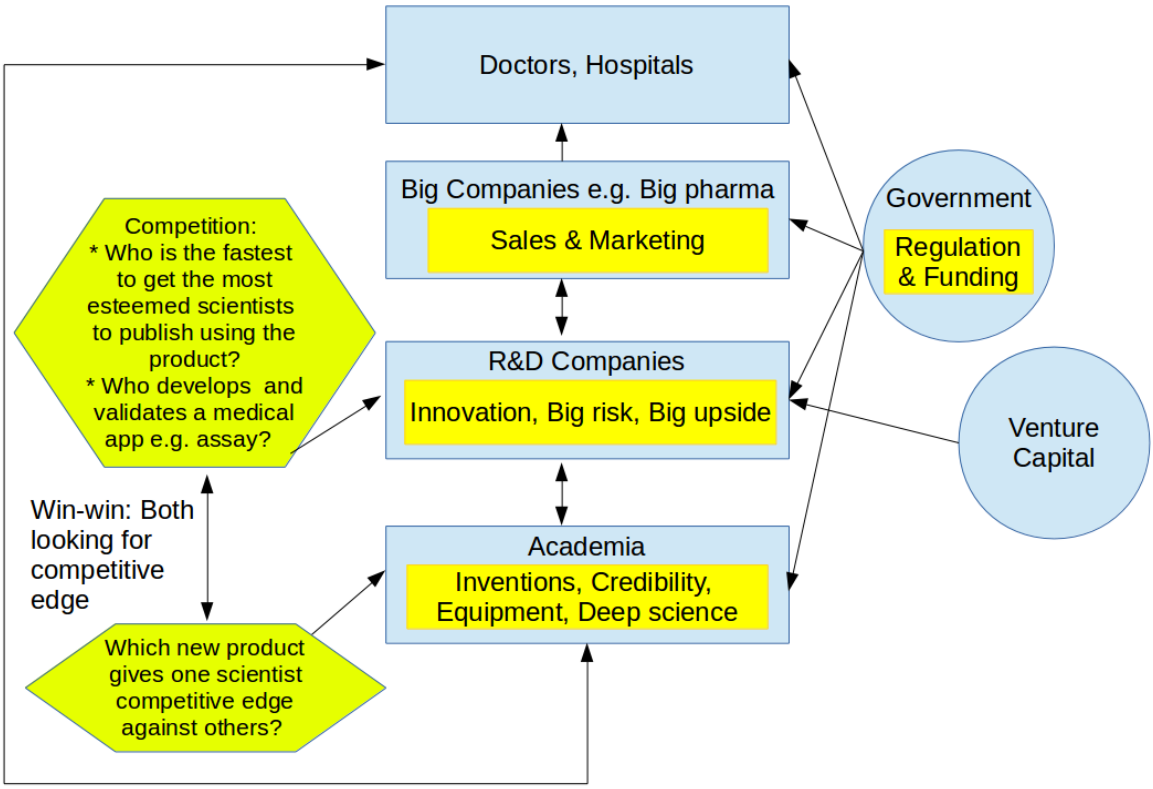

Figure 4.2. Biotechnology industry dynamics in the segment investigated in this research (Based on the analysis of data)

The key factors of this complexity identified in the data are 1) Deep science, 2) Regulation, 3) Big investments, high risk and uncertainty in business, 4) Symbiotic behaviour and partnering dynamics (developed to address the risk) and 5) Little time to learn due to acceleration phase of the market and competition based on learning races.

Firstly, the deep science complexity factor includes various dimensions. According to an experienced informant, the innovations and ideas are based on science and originate in the academic world. Furthermore, the complexity is exacerbated by the fact that biotechnology innovations work very closely with the human physiology and biology (as opposed to chemical and mechanical engineering innovations) (Interviewee A). In the case company activities, the deep science is present as none of the venture team is a biologist and they have identified a need for sophisticated laboratories (Interviewee F). Furthermore, this need of deeper scientific understanding is reflected in the experience that the venture lost a customer due to not being able to answer the deep scientific questions (Interviewee L). However, the parent company prefers not to dive deep into science (Interviewee C).

Secondly, the regulatory aspect of the complexity is linked with the human physiology and safety, as a big part of the strict regulation of biotechnology applies to the diagnostic applications and the innovations interacting with the human body. A further requirement are the clean rooms and other laboratory equipment aspects. The case company considers it easier to operate in the academic setting due to not needing to get involved with these demanding regulatory processes (Interviewee H). However, an experienced biotechnology expert recognizes the regulation as a possibility to build competitive advantage and barriers to access against the competitors. This can be done by developing an application and taking it through the regulatory process, including reimbursements. After the regulatory approval has been obtained for the innovation, its contents remain "frozen" and other products cannot be introduced in place of the original ones. Furthermore, the approval may be exclusive in the sense that the customers are obliged to choose among the small group of approved procedures (Interviewee A).

Thirdly, Furr et al. agree with Pisano by listing the target industry as one of the most high-risk compared to other industries (Furr, Dyer & Christensen, 2014):

> *In the R&D side of the industry, it's venture capital, innovations and big risks. But also the big upsides. Interviewee A*

One key reason for the big investments and risks are the aforementioned needs to engage in deep science and regulation related activities.

Fourthly and consequently, partnering has become an extremely important tool in the industry to address the specific features of the industry, especially the need for big investments, uncertainty and risk. Partnering in biotechnology industry has actually

developed towards such a distinctive, symbiotic direction as a survival strategy responding to the extremely (and for start-ups, often fatally) high risk (Pisano, 2006).

For a de alio newcomer, partnering is even more crucial as the conventions of the complex, non-familiar industry are hard or impossible to learn in-house. Still, partnering is a necessity for all industry actors:

> *if we think about the business model, every kind of partnering is essential [...] Partnering is extremely essential. Interviewee A*

Furthermore, due to the big investments and risks, partnering dynamics has developed towards a symbiotic direction where the ultimate goal of the newcomers is not to disrupt or overthrow the incumbents (that is, Big Pharma), but to reach a successful collaboration or exit arrangement with them (Furness, 2016; Bagchi-sen, 2007). The enormity of the investments and risks inherent in the biotechnology activities is too much for start-ups to bear, there is difficulty to obtain such funding, and these resources are often controlled by the enormous pharmaceutical companies and venture capitalist:

> *The whole business model of discovery and product development companies is based on partnering. They partner with Big Pharma who takes the product to the market. And there are different partnership models and very often Big Pharma are for example in research collaboration. Interviewee A*

On the other hand, the companies of Big Pharma compete for the small companies:

> *Big Pharma compete among each other and they all want to buy a particular company. There is huge competition at the moment. Interviewee A*

An important feature is also the tendency that different parts of one company may have different type of relations to other companies:

> *it's the distribution part [of the company] which is our competitor but at the same time, [another part of the company] is one of our largest suppliers. Interviewee B*

This adds further to the complexity of the biotechnology industry dynamics. All these complexity factors together may form substantial barriers for de alio entry into the industry.

As partnering proof to be such a central factor, I also conducted a social network analysis of the industry networks where the partnering dynamics and value networks of the target industry were analysed. The results are crystallized in Figure 4.3, Figure 4.4 and Figure 4.5. In the figures, the participant's names are anonymized by using numbers. These number inside the nodes refer to their order in the original data set and have no further bearing to the interpretation of the graphs. Also, the size of the node is proportional to the number of its

connections to other nodes (not size of the organization). The different types of relationships between network participants are shown in the legend.

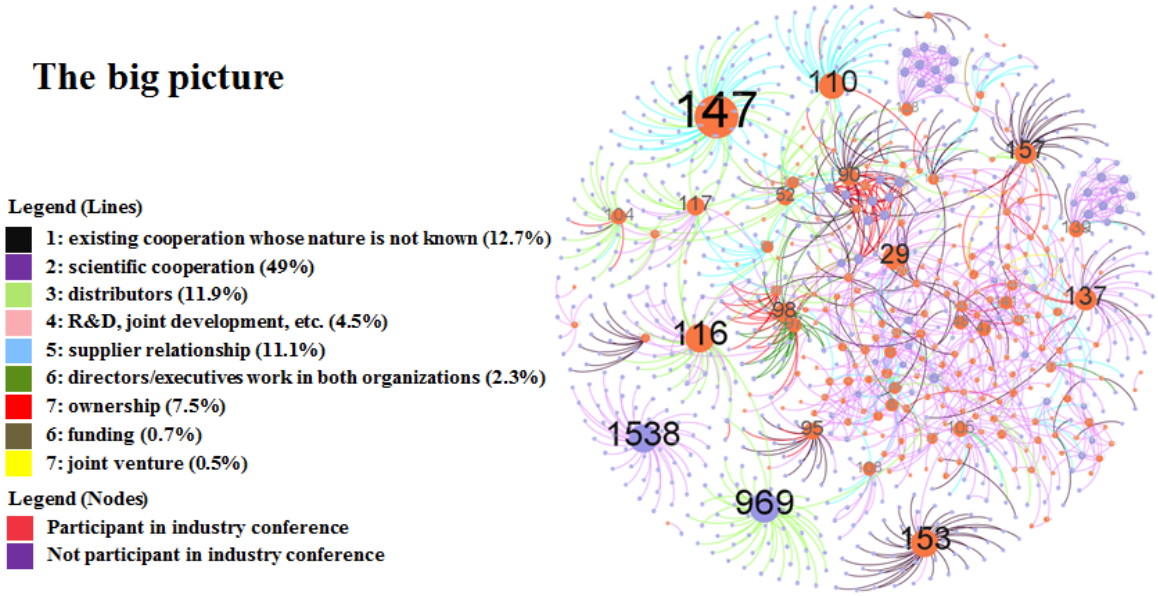

Figure 4.3. The figure shows a sample of the industry network

From the graph, it can be seen that the participants of the value network are networked in a manner where everyone is well networked and has connections to various other participants. This does not depend on for example if the participant is a small or large organization. The core of the network is especially tightly knit, and formed by numerous well networked entities, as opposed to a network type where the core(s) would be formed by one large organization, surrounded by smaller "satellites" with much less connections. The organizations in the tightly knit network core include both companies and universities plus other public research institutes.

Considering the mode or type of the relationships between the participants, it can be observed from the Figure 4.3 that scientific cooperation and joint development together account for more than half of the perceived relationships (53.5%). This signals that the motivation of the partnerships is learning. On the other hand, supplier and distributor relationships form almost a quarter (23%) of the perceived total, which signals that the motivation for these partnerships is access to market.

In addition to creating the main graph, the networks connections of two of the key competitors of the case company were separated from the data set and analysed separately. The results can be seen in the Figure 4.4.

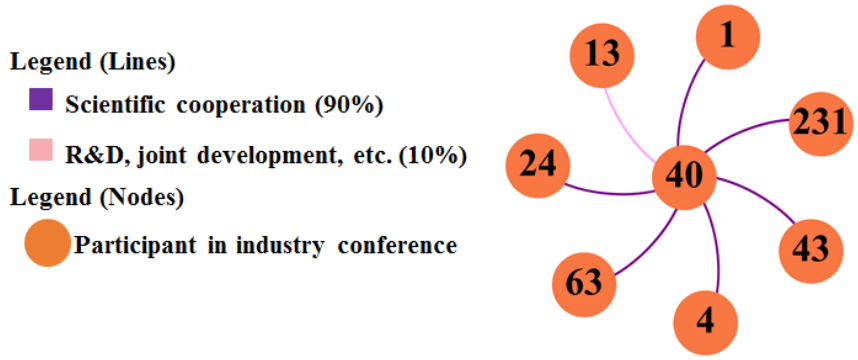

Figure 4.4. The network analysis for a competitor.

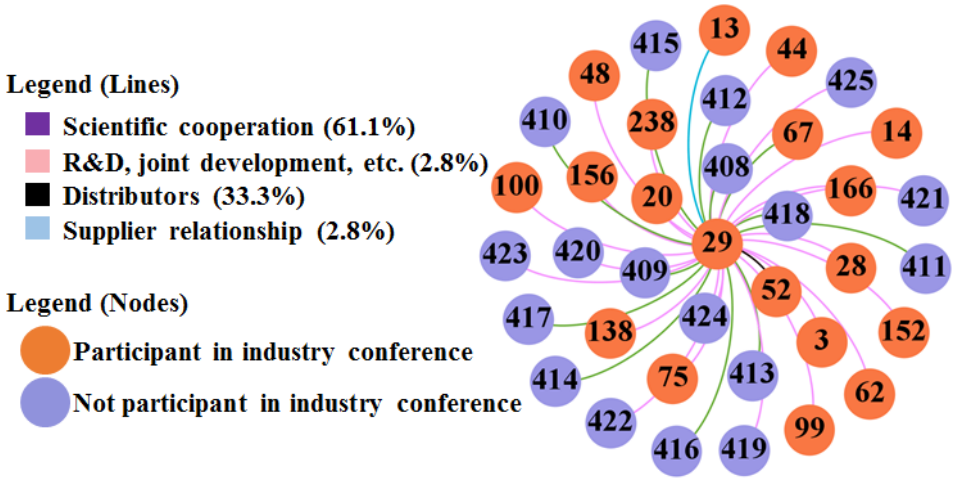

Figure 4.5. The network analysis for another competitor.

The Figure 4.4 shows the competitor at the centre of the network. Similarly, the Figure 4.5 shows another competitor at the centre of the network. The network of the competitor in Figure 4.4 comprises of 100% learning partnerships, while the network of the second competitor in Figure 4.5 comprises of 94.4% learning and 5.6% access type of partnerships. This signals that learning as a motivation for partnering is even more emphasized among the competitors of the case company than in the industry as a whole. The partnering motivations reflect the phase in which the industry or company finds itself. The percentages mentioned above signify that the learning motivation is common and shared in the industry, all the actors are learning continuously.

Moreover, from outside the graphical representation of the network, it is important to take into account the dense physical location clusters or hotspots in the networks of the industry. One case company interviewee mentioned that the Big Pharma companies continuously observe the clusters for new ideas. The clusters identified in the interviews are located in the UK, the US, France and Sweden/Denmark. The national value network in the case context

also has its own clusters, but according to two non-company interviewees, the value network is in many ways incomplete due to a phase of severe lack of funding in the past. Still, in a global field, no national network is isolated but connected with the international networks. This has led to researchers being recruited abroad and the actors in the national value network necessitating international contacts for certain activities. In my interpretation, the national network is nevertheless a potential point for tapping into larger, international networks and the hotspots abroad, for example via researchers' networks and expatriate researchers abroad.

Fifth, from the industry complexities in general, the de alio case company operates conscious of the time dimension. On one hand, this refers to the emergence / co-evolutionary / co-development phase of the target segment. According to an experienced industry expert at the moment there is lots of activity in the segment due to an influx of tiny new companies with problems to differentiate their product from the competing products. The interviewee considers that the period of influx is in its middle point, with approximately four years left of the active phase. After that, only some of the firms will survive. This corresponds to the industry life cycle theory tenets that the segment activity accelerates towards the rise of a dominant design and subsequent industry consolidation.

On the other hand, the case company is conscious of the de alio specific time dimension: in order to compete successfully in the challenging situation, it needs to bridge the asset gap and leverage the lacking assets to a sufficient level with considerable speed, keeping in mind the time frame and the window of opportunity indicated by the market situation and industry life cycle stage. Considering the situation, some of the knowledge, contacts or access opportunities may not be possible to develop on one's own, or this would take too much time compared to the available time frame. Partnering is identified in the case company as a way to gain these resources rapidly. The motivation dynamics and the corresponding possibilities for entry strategy are analysed in the sections 4.2 and 4.3 respectively.

4.1.3 De alio dynamics

In the previous subsections, I examined the home and target industries of the case company. In this subsection, I will analyse the de alio dynamics of the case company connected with operating in both of these two realities simultaneously, and balancing between them. In theoretical sense, this refers to ambidexterity, which was discussed in section 2.1.4.3.

First of all, the team in charge of the commercialization of the new product is structurally placed as an internal start up within one of the departments of the parent company (see Figure 4.1). Altogether, the parent has various internal start-ups, which have a common CEO to steer them.

The parent company, unlike many other innovators in the biotechnology industry, does not wish to sell the product (exit) but develop it into a new business area. For the same reason, it does not wish to turn the venture into a spin-off, which would be very common in the biotechnology industry. In addition, most of the competitors of their product are university spin-offs. According to case company interviewees, an advantage of the internal start up structure is to be part of a "big, reliable company" (instead of a start-up) when negotiating with customers and potential partners. On the other hand, as an integral part of the listed parent company, it must adopt a communications and marketing policy that keeps a low profile and avoids creating excess hype. This is a disadvantage compared to its competitors who can choose a more "visible" marketing strategy:

> *being careful in the sense of not doing these investments, because that is a public signal that we have moved to a direction. [...] Do they want to make this public at all, public in a big way. Because that affects directly the item that interests them, the share price. And then the expectations accumulate also based on that. Interviewee D*

Moreover, the internal start up is not to look for venture capital which is common for start-ups in the biotechnology industry. Instead, the venture is to be financed by the parent company. This means that some internal selling is involved instead of pitching the idea to external financiers:

> *if start up financiers are external, then for us it is this corporation, and because of it, part of the job is the corporate internal sales/validation, entering the strategies. Interviewee C*

While this is an advantage, it also implies consequently that it is not possible for the internal start-up to obtain knowledge, contacts or mentoring from an experienced biotechnology industry venture capitalist, as the financier is the de alio parent company.

Another dimension of the de alio dynamics, is the vision for the new product developed in the internal start-up and the parent company. The product is to become a platform for more products, the start of a new business area, a possible diversification and transformation modelled after other traditional manufacturing companies that entered de alio, using for example acquisitions:

> *If we look at the German chemical giants who have been in the commodity chemicals [...] some of them have made a very fundamental transformation, for example Bayer into the Life Sciences, and more and more someone like BASF is going to Life Sciences and buying Life Science firms here and there. They are quite traditional companies, too. Interviewee C*

For the case company, the product as a platform means supplying material for different biotechnology applications. This one product alone in the current target segment is not big enough business for the parent company. Hence the company is planning to develop more application areas in-house and with partners in order to expand to more products and segments using the first product as the platform:

> *I believe that in some point, if it goes according to our plans, [this product] will be left smaller than the ones coming afterwards. But this, it is the first one. Interviewee K*

However, dire need of the case company to learn the target industry in order to make the vision reality, is illustrated by the description of the target industry by a case company informant:

> *There is Big Pharma and the academia and the firms and these are the main players. But, after that there is the whole ecosystem which for me has always been a sort of a cloud. An amoeba that lives out there in the world. Interviewee D*

As discussed in 4.1.2., in comparison to material industry, the target industry and segment is perceived by the case company as more complex and the marketing process more demanding. The segment in question is even considered more demanding than certain other segments of the biotechnology market. This perception of complexity may be reinforced due to the target segment not being familiar. However, as discussed in 4.1.2, it can be argued that the biotechnology industry and the target segment in itself have certain characteristics that render them more complex than certain other industries and segments, even for established participants.

4.2 Why partnering? Motivations, targets, desired outcomes of partnering

In the context described in the previous section, (a de alio market entry without target industry specific knowledge, networks or access), some of the necessary resources may not be possible or fast enough to develop them in-house, within the window of opportunity available. In order to examine the partnering options, for example, type of partner and mode of partnership, one must look into the motivations of partnering. In this section, I will present

the empirical findings concerning the motivations affecting the partnering situation. To begin with, one case company informant summarized the general reason for partnering as opposed to in-house activities. The informant's view is aligned with the longitudinal trend discussed in chapter two, the rise of importance of partnering:

> *Developing the new is nowadays based strongly in building the network, so that you try to cooperate in the value chain, and not work alone in the researcher's chamber and then after a few years go to market and the product does not work or there is no business. Interviewee E*

The informant implicitly refers to the need to keep learning the customers' needs.

Summarizing, In the research material, two main motivations for partnering stand out: learning and access. Three further main motivations were also identified and the complete list is described in Table 4.1.

Table 4.1. Summary of partnering motivations identified in the empirical data

Partnering motivations	**Description**
Learning	gaining knowledge assets on both biotechnology business and science
Access	overcome barriers of access to Big Pharma, KOLs, market in general, co-development opportunities, infrastructure such as extremely sophisticated laboratories
Competitive positioning	firms and academia both operate in competitive dynamics where a newcomer and a new product represent an opportunity for obtaining a competitive edge against their peers or a possible danger if their peers should grab that opportunity first; industry life cycle: preparing for consolidation and shakeout (see life cycle theory)
Time dimension	accelerating the processes and acting within the window of opportunity
Mitigating risks	sharing risks of big investments, experimenting

The findings on learning and other main specific motivations for partnering are discussed in detail in the following subsections.

4.2.1 Learning from partnerships

The findings on learning, that is, (developing intangible knowledge assets) suggest that for the informants, learning means both the deep biotechnology science as well as the biotechnology business conventions and needs of the customers, partners and the industry as

a whole. As the main partner types identified in the empirical data are the Big Pharmaceutical companies and the academia, the prioritized learning goals perceived by the informants are learning both the deep science as well as the business logic of these two key actors. It is also interesting to note that this very study and the research project with a business school constitute a part of a learning effort partnership with the motivation of understanding the business logic of the target industry. A case company informant summarized:

> *No-one in the team is a [biologist]. And none has a background in the pharmaceutical industry. So it is a minor negative aspect, although we are experts with materials, yes. But we should have a little more specific knowledge, according to my opinion, on the market where we are going. This obviously is related to in which part of the value network are you, and of course we are learning enormously. [...] we also have contacts with pharma companies. But our partners are more leaning towards research, either university people or suppliers. It would of course be easier if, say, a former employee of Novartis worked in the team and would already know the markets and the ways of working. Interviewee F*

An experienced target industry expert agreed on the business learning aspect, stating that it is good to have fresh ideas but when a company is looking for partnerships and competitive advantage, it probably wishes to hire industry experts. This is because the company lacks the long term understanding of the target industry and its conventions, and that may make the partnership negotiations hard for it.

4.2.2 Access

The second most prevalent partnering motivation, the motivation of access to the market, is perceived by many informants first and foremost as access to business with the Big Pharma, which would unlock the sales potential:

> *what comes to Big Pharma [...] more than anything we are looking to access their sales network and the existing networks with our product. To get it there in the distribution, that would give it visibility [...] It is absolutely clear that [the material] should be sold [in massive quantities] to the Big Pharma instead of [tiny quantities] to the Academia. Interviewee D*

However, access had not been achieved by simply directly contacting and pitching the Big Pharma, as one case company informant told, but more research on the science side of the product was necessary. Conducting that research in-house and with the present means had been too slow and another provider had been chosen by the Big Pharma.

Hence, although the case company informants do not consider academia a massive customer, several informants expressed that the academia is an indispensable key partner in order to access the business with the Big Pharma:

> *the [researchers] may have contacts to Big Pharma and it opens the way. [...] the Academia is more of a route to the Big Pharma [...] there you do the basic research and uphold it. But the actual sales, they go via Big Pharma in the end [...]. Interviewee D*

Moreover, apart from overcoming barriers to entry to market and networks, one motivation for partnering was identified as accessing the use of very sophisticated scientific laboratories, which the new venture could not afford and the parent company was not excessively willing to finance. This also was seen as a motivation to partner with the Academia. However, the academia is not easy to access either, which will be further discussed in section 4.4.

Concluding from these findings, the industry network is perceived to be on one hand a closed network with barriers to entry, where a newcomer needs to have reference of one participant to access others. However, at the same time, by entering the market one is already part of the network, although it is the continuation of the process which defines one's position in it.

4.2.3 Competition and positioning in the market

In order to position the case company in the target market, the case company informants perceived it necessary to partner, as it was observed in the previous sections that pitching the customer directly had not yielded the desired results.

The case company had not expressed an explicit, definite choice of business model or desired position in the network before or during this study, and the differentiation from other similar products was underway. In part, the knowledge produced by the research project was thought to help in this respect. Nevertheless, supplier position was mentioned as a preliminary preference, and this remained during the study. Irrespective of the position or business model choice, however, partners were identified to be in key role in building the desired position and competing against other similar products. An example of this competitive positioning through partnering identified by informants was the supplier to the Big Pharma position, requiring university partners to legitimate the product, or develop an application to raise the product above the competitors.

On the other hand, I found that in the industry, a newcomer is immediately part of the network as they appear in the radar of the other participants. The newcomer is evaluated and

positioned in the competitive landscape by each of the actors in the network. An example of this in the findings is a big distributor, extremely interested in new products and newcomers, continuously scanning for new partners because:

> *we need a little competitive edge in relation to the present dominant player in the market. Interviewee J*

This is an example of partnering motivated by competition-related reasons. This positioning in the network can be seen also as linked to preparation for industry consolidation phases, where firms without a strong position exit the market. The distributors were going through a consolidation phase. The informants also expected one to follow in the case company target segment too, after the emergence phase. In the dynamics of the industry, both the firms and academia operate in competitive dynamics where a newcomer and a new product represent an opportunity for obtaining a competitive edge against their peers (see Figure 4.2), or a possible danger if their peers should grab that partnering opportunity first. Therefore, a win-win alignment with a partner may be found as each of the partners can provide the other a competitive edge against the partner's competitors. For example, the firms are looking for access to references for their products from the researchers and the researchers are looking for products that could help them rise above their peers by facilitating scientific breakthroughs and other significant results. Furthermore, when partnering for competitive positioning, it is important to bear in mind the biotechnology industry complexity factor that part of one organization may be in a rival relationship and another in a collaboration relationship with the respective parts of another organization, as one distributor informant reminded.

4.2.4 Time dimension: accelerating the commercialization

According to the findings, the case company informants are aware of that "the window of opportunity is not open forever" (Interviewee G) and that the company needs to learn the business environment faster:

> *when you are developing the new, you should be able to understand and learn rather quickly. [...] what we should improve [...] is to learn to recognize faster the new business environment value chains and ways of working. [...] I am not saying we need to do it better but we should, through some process, be able to learn faster, to figure these things out faster. Interviewee E*

This observation is supported by another case company informant who reported that finding out the scientific answers to the questions of Big Pharma customers by in-house research

had been too slow and therefore a competitor was chosen to provide the product for Big Pharma.

As reflected by these examples, the time dimension of partnership motivations is a cross-cutting theme, as it concerns accelerating all the other commercialization activities and is present in each of them. This means for example speeding up the processes of learning, access and positioning the product in the market.

Furthermore, another time-related motivation for partnering is recognized by a case company informant. The interviewee pondered that not only this particular target industry requires faster action and partnering, but that a more general shift of gears or megatrend is presently underway. The informant commented that "nowadays, developing the new is based very strongly on building the network" (Interviewee E). This is the general development also identified by Dunning (1995). This implies also that the expectations of other industry actors and the industry conventions and ways of working needed to be taken into account. If one wishes to act in this changing environment, one needs to adapt, which the case company is doing in this commercialization process.

4.2.5 Mitigating excessive risks

Partnering was also identified by the case company interviewees as a way of mitigating risks of mainly two kinds. Firstly, they refer to sharing risks of enormous investments. This had previously been done in the home industry for example by forming a joint venture (which otherwise was non-preferred):

> *manufacturing firms have started a joint venture only for the reason that nowadays [the infrastructure] could cost two billion plus binding 500 million for ten years [...] before they generate any money. In that case, even for big companies, the bound capital becomes so enormous that it is maybe worthwhile to share and divide the risk. Interviewee C*

As noted in section 4.1., sharing the risk of enormous investments is exactly the reason for the development of the particular partnering dynamics of the biotechnology industry as well.

Secondly, one case company informant presented a very different point of view concerning partnering with motivation to mitigate risks. The risk was identified in the company policy of concentrating on incremental improvement, and not partnering or experimenting in new ways. The informant noted that the company itself considered this policy as risk-avoidance, but commented that "big risks have been taken by not having done anything" (Interviewee

G). The informant added that in order to truly renew, one "must take a risk". The informant was not sure if the company had "the capabilities", "mental flexibility" and "genuine desire" to do it. In order to mitigate this risk of not renewing in time, the informant recommended that the case company experiment with truly new ways of partnering.

4.3 Modes

I have now mapped the target network dynamics in chapter 4.1 and the key motivations for partnering on the part of the case company in chapter 4.2 (first and foremost, learning and access). Now it is time to consider the perceived possibilities and constraints for partnerships in this context, of which the empirical findings will be presented in this section. The heterogeneous portfolio of relationships and varied modes recommended by Powell (1998) is taken as a starting point. For this reason, I will discuss several mode option. On the other hand, the case company considers Big Pharma as their ultimate partnering preference and a relationship with Big Pharma as the ultimate goal. This is typical and consistent with the target industry dynamics. Hence, partnering with Big Pharma is taken as a focal point of the analysis and deepen in the section 4.4.1.

4.3.1 Reaching targets by using suitable, corresponding modes

As noted in chapter 2, the overall selection of modes for market entry and partnering abound and over time, different modes have been analysed from different perspectives in the literature. Similarly, according to the informants, the simultaneous use of many different types of partnering is typical in the industry. Certain modes are considered to converge with certain contexts and partnering motivations or goals. Considering the analysis of the partnerships networks of the target industry in section 4.1, the most common motivation for partnering was identified as learning and obtaining competences, as 53.5% of perceived partnerships supported this goal. The modes indicating these were scientific cooperation, R&D, joint development and similar. On the other hand, access ranked second with 23% of the relationships, consisting of distribution and supplier partnerships. The matching of motivations with modes is illustrated in Table 4.2:

Table 4.2. Most typical partnering motivations and their corresponding modes

Learning motivation	Scientific, R&D, joint development and similar modes
Access motivation	Supplier, distribution and similar modes
Other	Management contracts, funding, ownership, joint venture, etc.

As the learning and access motivations rank highest both in the industry and in the case company, these modes (scientific cooperation, R&D, joint development, supplier, distribution and similar) need to be kept in mind when considering the perceived options, preferences, pros and cons for partnering modes in the case context.

The fulfilment of the motivation to learn from (and especially how to) partner is available to a de alio entrant in all target industry partnerships regardless of the mode chosen, as the environment is new. However, continuous generating of new knowledge and hence learning is indispensable for all companies operating in innovation-based industries such as biotechnology (Powell, 1998), including the companies who were born in the target industry and have an established position there. In this sense, the learning-related modes listed above apply. The case company also prefers scientific collaborations and co-development, yet it prefers not to dive deep into the science, nor share IPR.

Similarly, the fulfilment of the motivation of access is also available for a de alio in all partnerships, especially in the form of accessing more contacts, networks and knowledge. However, for organizations born and established in the target industry, the preferred barrier-overcoming and access-creating modes are distribution and supplier relationships. Interestingly, although the case company has a strong motivation to partner in order to circumvent the barriers to access to the market, it is not interested in partnering with distributors, the most typical access-related partnership arrangement in the industry according to the empirical social network analysis. The parent company expressed a strong preference that distribution should be organized strictly in-house from parent company, not even through company-owned subsidiaries. This preference is understandable from the point of view of not losing direct contact and learning opportunity with customers, however also reflects the idea that distribution is seen in somewhat negative light as a simple transaction or loss of control (classic view), not from the point of view of a learning or access opportunity (recent view).

Other modes may also be utilized for example to overcome or create barriers involving for example regulation. However, regulation-related issues are referred to further research, as they were not chosen as a focal point of the study at this point of the commercialization process. The parent company has crafted its strategy for short and long term and thereby set conditions to the use of the new venture as a learning tool and probe. Consequently, the

perceived preferences of the case company in the interviews are summarized below in Table 4.3.

Table 4.3. Preferred and non-preferred partnership modes as perceived by the case company

Non-preferred	**Preferred**
joint ventures	Supplier (in/out)
Minority shares/corporate venturing	Licensing (in/out)
Spinoff	
Exit	Joint development etc.
External capital with mentoring	In-house / full ownership
Distributor	Acquisitions
Sales via subsidiaries of the parent company	Internal start-up
Extroverted visibility	Restricted marketing activities
Deep scientific involvement	Basic level scientific collaboration

In the following subsections, the focal point will be in the case company preferred and non-preferred modes. Of these modes, spinoff, exit, external capital with mentoring and internal start-up were discussed in subsection 4.1.3.1.

4.3.2 Constraints and modes not preferred by the case company

Starting from the general principles, according to a case company interviewee, the company policy is that partnering arrangements requiring shared equity are non-preferred and must offer exceptional benefits to be chosen as a strategy:

> *I always start by thinking what can be done without cross-ownership [...] ownership must bring something that cannot be reached by any other means. Interviewee C*

One of such exceptional arguments is forming a joint venture in order to share the inherent risks involved in enormous investments of billions of euros for decades, as noted earlier.

Furthermore, the company has adopted a general guideline that corporate/capital venturing needs exceptionally strong arguments to be chosen as a strategy:

> *[the company] has, at least until this day, chosen the policy of practically not engaging in capital venturing activities. This guidance has come from the highest management, but never say never, of course we always discuss as necessary. Interviewee C*

In the interviews, I found various reasons why partial ownership is not preferred. The case company considers that the added value of owning for example 30% of another firm is very questionable (preferring licensing or acquisition). The company perceives the new

businesses as too high risk and little probability of success, binding enormous amounts of resources and requiring heavy governance efforts:

> *even a small firm, [...] if they're relevant developers for the company, we are immediately talking about millions [of euros] and then the millions are bound in that firm. You should have quite a lot of money to make such a "one success, nine failures rate" function [...]*
>
> *the governance [...] you need to have someone sitting in the board and often in this kind of firms, it is not enough to go twice a year to have coffee and steer them but they usually need continuous assistance. That takes a resource to take care of it. On top of it you have the additional perspectives of a listed company. If you have minority shares of firms, you need to take that into account in the reporting. [...] This model of governance is quite heavy. Interviewee C*

According to the case company, one more reason for this non-preference guideline on corporate venturing is an earlier negative experience of corporate/capital venturing from some 15 years earlier, from the time of the IT boom of the beginning of 2000s. In that time, the company was able to create interesting new businesses, but did not know how to develop them further into strong, scalable businesses. Hence, in the end, the new businesses and the whole corporate venturing unit were discontinued. They were considered too far from the core businesses because their target market, product, materials and production technologies were all new to the company core. This lead the company to prune new ideas differently, looking for those that "clearly and rationally" match the core (Interviewee C). As a result, today, it is unusual that their business would involve both a new product and a new market.

Some informants had the opinion that the bad partnering experiences of the parent company in the past may not have been due to a certain organizational mode such as shared equity but the way the partnerships in general were designed and maintained:

> *some of the partnerships have had problems because the roles of the partners are not clear. And, of course [the corporation] being big [...] according to my understanding, would pretty much like to dictate the conditions of the partnership. Interviewee G*

More than one informant in the case company considered that the style of crafting and maintaining partnerships of the parent company may need to be adapted in order to operate in the new environment:

> *you need to build trust, you need also to give something [...]. It is I think for [the company] quite a new style. It's not that easy in the beginning [...] very different from traditional, heavy industrial production. Interviewee I*

Another contended:

> *I would consider it positive to aim for partnerships of two equals. These could even include joint ventures.*
>
> *[Interviewer: Is it in the company DNA?]*
>
> *No. […] It should be. It should have been for some time, probably the last ten years […] this activity needs to be learned from A to Z. But in some limited case where you would have for example a joint venture of one of the new business areas, from there you could start practising it again […] the chemical giants such as BASF or equivalent, whose turnover is many- if not tenfold compared to [the case company], practising in a context like that could be rather interesting. Interviewee G*

Hence, a policy that a certain partnering mode (or, a partner type) is inherently a bad or a good choice, is not genuinely context sensitive. Negative and positive outcomes of partnering should be understood as more multifaceted: for example, the organizational culture and context sensitive partnering capabilities need to be taken into account and developed continuously to address the changing business environments and positions where the company operates. Attention need to be directed to crafting a win-win situation and aligning the business models so that both partners benefit when one executes its business model well.

Furthermore, another non-preference concerns the scientific aspect. The views of the informants on the needed depth of the scientific involvement either in scientific activities, or at least understanding, vary. The case company has adopted the line that actual laboratory activities are ruled out and belong purely to their researcher partners (e.g. academia, Contract Research Organizations - CROs), whose role in the partnership constellation is to conduct basic work creating user data, application notes, visibility and product legitimating scientific papers and references, plus provide contacts to Big Pharma. Similarly, the company wished to avoid engaging in activities requiring deep science or regulation such as developing more sophisticated applications. This guideline is congruent with the company preference for activities that are strictly related to the core business and non-preference for experiments. It also reflects risk avoidance and wishing for easy wins through executing the familiar home industry business model of a material provider. However, some informants were of the opinion that more was needed to know about the target market science, and in order to success, the venture would need to dive deeper into the target market activities.

Moreover, the company expressed a non-preference for the use of a distributor to market and sell the product:

> *you have these distributors [...] marketing channels and such, but no one was really interested in that [...] But the university researchers, I do not know if it makes sense to send products from here to separate researchers, as one has the customs duties and all, sending from [the company's home country] is difficult. If we had a distributor in some other country, they could take care of the small clients. Interviewee F*

The international subsidiaries of the parent company are not preferred either to be used in the distribution in order not to lose the direct contact with the customer. According to the case company informants, this preference serves the learning purpose. However, it also reminds of the classic manufacturing tenets of preferring in-house activities, control and full ownership.

All in all, it can be observed from the material that the case company is placing numerous non-preferences to partnering modes. Some informants consider that the non-preferences may need to be relaxed somewhat in order to succeed in the target market:

In the end it seems that the negative experiences of the past have influenced the company policies strongly, possibly overriding the present context. The effect of this to the overall case will be further discussed in chapter 5.

4.3.3 Possibilities and modes preferred by the case company

According to the informants, as a general principle, the case company prefers in the first place full ownership and in-house activities, and in the second place contractual agreements.

> *[...] in most cases we build in a focused manner on the ideas that we believe can directly, piece by piece, be built into business areas fitting the company. Interviewee C*

Continuing in the same vein, the case company also prefers in/out-licensing or acquisitions and argues for it based on the traditions of the material industry:

> *You either take [the technology] entirely via acquisition or you simply take the license. Interviewee C*

According to the case company, some 15 years after the latest corporate venturing experiments, the preference for these modes with strong control is deeply embedded in the corporate culture and "DNA":

> *The company culture is quite strongly such that we want to steer, control and lead those issues and firms where we work. I would not completely rule out a minority ownership but it is not in the company DNA. Interviewee C*

These preferences match the classic manufacturing industry theories discussed in chapter 2.

Furthermore, one of the most preferred modes of the company is being a supplier and the company is also using suppliers to fulfil its needs.

> *It would be ideal, for example, if we had a couple of very big customers to whom we could sell directly. Interviewee F*

Selling directly was perceived as preferable in order to maintain direct contact (and control) of the customers. This preference also matches the classic ideas of control and in-house activities.

The supplier strategy is considered as one strategic option also by informants outside the case company, although not necessarily the most recommended one:

> *If there is a big firm in the background, that way you can reach some sales and get to compete with the other material firms. It is a strategic question, what size of a market are you after? [...] Do you want to be one of the material providers or do you want to go deeper into the biotechnology. Interviewee A*

However, experienced industry experts considered this position vulnerable due to fluctuations of sales and this concern was also expressed by a company informant. Furthermore, in the sales to academia, the fluctuations may also be rapid due to cuts in public funding. Moreover, in basic materials, the customer can easily change supplier if there is no clear competitive advantage and differentiation:

> *Over the last ten years I guess there's probably dozens of options which have appeared. [...] All of those suppliers now have the same challenge, how do they make people understand or get a feeling for how one[product] is better than another. Interviewee H*

While the case company repeatedly expressed a preference for being supplier or a material provider at the same time a company informant observes other options:

> *Although we say that we are a material provider, yes, but all that we do here makes me feel that we want to be much deeper in the value chain. Interviewee F*

Practically, in the target industry, this requires for example deeper involvement in the science and research sphere.

On the other hand, the company also prefers joint development for various reasons. Joint development is perceived as more flexible, involving lighter forms of governance for a listed company, and less binding in terms of both monetary and human resources. This mode was perceived in the empirical social network analysis and non-case company interviews as one of the typical learning related modes in the target industry and hence suitable mode for the commercialization process as well.

4.4 Key partner groups - With whom to partner?

I have now discussed the findings on partnering motivations and modes. In this section, I will then present the empirical findings concerning the identified key partner groups in the context.

4.4.1 Big Pharma

As I noted in chapter 4.1, biotechnology is a symbiotic industry where other actors prefer a symbiosis with the incumbents, that is Big Pharma, instead of seeking to disrupt and overthrow them (to the contrary of Christensen's theory of 1997). In the interviews, the case company expressed that partnering with Big Pharma is the most important goal in partnering and customer relationships. The case company prefers to act as a supplier, and material provider, selling directly to Big Pharma. However, some informants advised against offering only a material as the position is vulnerable. The parent company targets of a "big enough business" also raised concern with the supplier model:

> *You can never be sure if they are going to order lots or little of the material in the end. In order to reach big sales volumes, will it be necessary to have all big pharmas as customers? Interviewee D*

Another option preferred by the company would be to engage in a licensing arrangement or research collaboration with Big Pharma. The long term goal expressed was to create a platform with the first product as a basis for a range of products.

Due to the symbiotic dynamics, accessing Big Pharma is not easy however. According to the social network analysis conducted in this study, Big Pharma may maintain hundreds of partnerships and according to interviews, competition for their attention is fierce. Hence, the Big Pharma is in a position to choose their partners.

According to the interviews, Big Pharma continuously scans for new ideas in the academic networks of the leaders of their research departments, scientific conferences and contacts by smaller companies. The Big Pharma engages in scientific and product development collaboration, yet they prefer the small companies to legitimate the offering first and not to enter in the riskiest development phase themselves. The Big Pharma also continuously rearrange their structure and ownership by buying and selling departments and small companies who have demonstrated enough sales. However, in the case company situation,

selling the venture was considered a non-preference and hence, partnerships with Big Pharma are the target. As an experienced industry expert comments:

> *[... Big pharmaceuticals] may be more enthusiastic to cooperate when an application has been developed with researchers and proven that it works very well for screening drugs. [...] one could aim for a discovery cooperation developing a new assay for certain cancer types in order to develop better drugs, but one has to be careful not to end up in a position where you go with only a material. There has to be some research from the university, and build the application idea, and go to the big pharma with that as a spearhead. Interviewee A*

Consequently, in order to reach Big Pharma, the company may need more partnering with researchers irrespective of chosen business model. However, according to interviews, the case company is not willing to dive deep into science not pharmaceutical regulation, preferring to be only a material provider.

4.4.2 Researchers and academia

As discussed earlier, deep science is one of the key complexity factors to be addressed in the biotechnology industry. In the industry dynamics, the researchers are a potential access route to other customer groups by producing scientific data and references on the product. In this realm, the Key Opinion Leaders (KOLs) are the most important potential partners. Another important question identified is whether the case company wishes to engage in deeper scientific activities for example in the form of developing an application together with the researchers. These questions will be explored in this subsection.

The case company informants expressed their desire and need to collaborate with research partners. Some were of the view that it may not even be possible to stand out among the competitor products and draw the attention of Big Pharma without developing something unique such as an application. Furthermore, they believed that something more sophisticated should be developed, as offering only material would be a vulnerable position due to sales fluctuations. An experienced target industry analyst recommended precision medicine as a trend to follow for application development if one wishes to get a larger share of the market.

However, the views of the informants on the needed depth of the scientific involvement either in scientific activities, or at least scientific understanding, vary. According to the informants, the original preference of the case company is to act as a material provider for Big Pharma and leave the more sophisticated activities for the Big Pharma. The role of academia in this model is to provide basic information and legitimate the product, to conduct

basic work creating user data, application notes, visibility and product legitimating scientific papers and references, plus provide contacts to Big Pharma. The case company has adopted the guideline that actual laboratory activities are ruled out and belong purely to their researcher partners (e.g. academia, CROs), Partnering with the academia was mentioned also as a way to obtain access to infrastructure such as sophisticated laboratories. This may signal some differences of viewpoints between the parent company and the new venture.

Whichever collaboration level the company may choose, legitimation or application development, the interviews showed that the key partner group inside the academia are the Key Opinion Leaders. However, one of the case company informants suspects that as in another biotechnology industry segment, the Key Opinion Leaders are probably the target of a "bombardment" of marketing material, and for this reason very selective with whom they partner, similarly as the Big Pharma companies.

Furthermore, adding to the complexity and barriers to markets and network access, biotechnology expert informants add some specific observations. The researchers to collaborate with need to be international, not only from the national network, and it is crucial to work with the most senior or second-most-senior Key Opinion Leaders, not only young scientists (although they may be easier and less costly to reach). According to an informant, in order to draw the attention of Big Pharma, it would be recommendable to take the role of a moderator between Big Pharma and academia, but this requires extensive networks in the academia:

> *The national data is not sufficient, one should always do these things internationally [...] you have to have lots of researchers in the background [...] top research units are of course interesting [...] the younger ones and those who are not yet in the high professor positions may be [...] post-doc [...] with them is easy but it takes a longer time [...] you simply need to work with the senior Key Opinion Leaders or second most senior ones. Interviewee A*

Apart from academia, big experienced CROs were mentioned as a recommended partner type in order to reach the Big Pharma. However, another informant held the opposite view claiming that CROs only do what Big Pharma asks of them. Hence, the link is in the direction that Big Pharma creates the access to CROs. Therefore, the issue is debatable and possibly both views are right in different contexts of CROs, which were not elaborated in the data.

Regardless of the type and nature of the scientific cooperation, it is evident that it is one of the key elements in partnering in the biotechnology industry. It serves both top motivations

for partnering: learning and access to markets, which moreover are inextricably interwoven with each other as one is needed to obtain the other.

4.4.3 Distributors

Another partnering key question to be solved by the case company is the distribution issue. Distribution is a prominent partnering mode in the social network analysis. It is linked to the motivations of access to market and to Big Pharma. According to the case company, it wishes to keep distribution in-house, in the new venture. Distributors or even the international subsidiaries of the parent company are not preferred to be used in the distribution in order not to lose the direct contact with the customer. According to the case company, this preference serves the purpose of learning the customers' needs.

However, according to a case company informant, some customers are obliged to purchase from certain sales channels, usually the big distributors. Moreover, the distributor partnership need not be exclusive, but may help reach the customers who are obliged to purchase from big distributors, without losing the ability to sell directly as well. One big distributor describes the target industry dynamics as follows. On one hand, the small companies need the massive sales network of a distributor to get their product to the market. On the other hand, big companies with a known brand have the option: they either sell directly or opt for a multi-channel strategy to get their products to the customer. The big distributors may also provide one access route to the Big Pharma, since as one distributor puts it, "Big Pharma are actually our biggest customers" (Interviewee B).

According to target industry informants, distribution partnership may also serve for enhanced learning and access. Learning can be enhanced in a distribution partnership by choosing a partner who engages the de alio entrant in a mentoring dialogue:

> *Well, the goal. usually is, to make money, right, so that everybody makes money and everybody's happy […] And it's usually more collaborative atmosphere let's say because you all want the same thing […] And also regularly reviewing these, with quarterly business reviews, you need to discuss about what's going on in the market, how is the products, performing, which ones are not performing, where are you selling so this kind of, keeping finger on the pulse is very important, so that you can then direct or put more effort in, web enrichment or, more training of the people and. so that's definitely the main activity. Interviewee B*

Furthermore, in the distribution business, the distributors are consolidating, which affects the customer behaviour as well. As mentioned in section 4.2.3, due to consolidation the

distributors are actively looking for new products and partners in order to gain competitive advantage. This underlines their motivation to partner for competition-related reasons (defensive / offensive) as discussed in Chapter 2. The consolidation opens up possibilities to partner on a win-win basis.

4.5 Summary of the empirical data analysis

In the fourth chapter, I have analysed the research context of a de alio firm wishing to enter from material industry to biotechnology industry as well as the main motivations of partnering that de alio context produces (learning and access) and analysed the identified possibilities and challenges of partnering.

The empirical data show a case context where the company operates in two very different industries simultaneously. The case company needs depicted in Figure 4.6 (learning, access, market positioning, speeding-up and mitigating risks) are congruent with the case context complexity factors (high risk, deep science, symbiotic relationships with incumbents and fast-paced development). One may also say that the complexity factors give rise to these needs. Furthermore, as in the target industry in general, also in the de alio context specifically, partnering is identified as an important way to alleviate the industry complexity challenges. The most important identified motivations for partnering are listed in Figure 4.6.

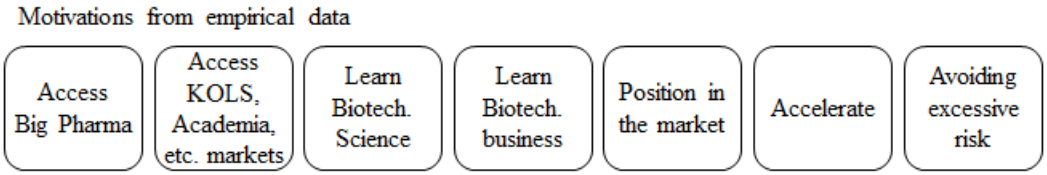

Figure 4.6. Partnering needs, motivations and targets identified in the empirical analysis

The motivations of the case company are aligned both with the ones presented in the recent theories in chapter 2 and also with the target industry findings on motivations. However, the case company poses specific conditions and ways to act to fulfil these motivations, needs and targets. These conditions and ways to act are less aligned with the target industry findings or the respective theories.

Moreover, the features of the internal start-up structure shape the reality of the partnering choices, not least in the form of parent company preferences on why, how and with whom to partner. The empirical data show that the parent company has preference for control, full ownership and arms-length contractual modes, and non-preference especially for shared

equity modes. These preferences are congruent with the theory and findings describing the material manufacturing home industry of the case company. They are not aligned with the findings on the target industry partnerships aiming at trust, common goals and mutual benefit. Close collaboration is expected even in contractual arrangements. Some informants explicitly recommended that the case company adapt to the new business logic, not only in the target industry but little by little to some extent in the core as well, for the sake of general renewal.

In a nutshell, it can be said that the most prevalent idea for a partnering constellation perceived in the case company includes the case company becoming a material provider or supplier for the Big Pharma. In the first phase, the target is to reach a substantial market share and business volume. Later on, this "probe" business and first product is to be developed into a platform for more products based on this first product. To reach this goal of collaboration with Big Pharma, the case company has identified the need to engage in scientific collaboration with researchers (e.g. academia, CROs) who can help to create legitimation, visibility, and user data in the form of scientific papers and references, plus provide contacts to Big Pharma. The global distribution is to be handled by the internal start-up in the home country of the parent company to maintain direct customer contact.

Among the informants both inside and outside the case company, points of view vary on which vision and corresponding partnering constellation is the most suitable in the short and long term to reach the sales volume and market share goals. Some informants agree with the vision of aiming at a material provider role. Another segment of the informants expressed their concern whether the strategy of being a material provider is enough to draw the attention of Big Pharma, to prevail in the competition against other similar products, or whether it can fulfil the target of sales volume and business size even if otherwise successful.

The conclusion from this concern also varies: some consider a multiple-product model better and sufficient, while others strongly recommend aiming at something more sophisticated and unique. This means for example developing an application with a scientific partner and using this to leverage the company and the material into the radar of the Big Pharma. These strategic choices also imply different levels of scientific understanding necessary in each strategy. The more sophisticated the aim of the strategy, the deeper the scientific understanding (and possibly regulation) required. In any strategy, however, regardless of the direct involvement or not in actual laboratory activities and similar, the company needs to

understand their customers' needs and problems in order to solve them. In biotechnology industry, this indicates rather deep understanding of their customers' scientific activities. Moreover, the case company wishes to handle the distribution itself by the new venture, but some informants recommended using a non-exclusive distribution arrangement for access and learning.

Furthermore, the views on the mode of partnership vary. The case company has preferences and non-preferences on which modes it wishes to use. Irrespective of the mode, the informants expressed the utmost importance of how the process and relationship of partnering is managed to create and uphold a fruitful win-win situation and trust between the participants. The present views and preferences of the case company are inherited from the home industry business logic and experience; therefore, learning how to collaborate in new, target market ways may be one important goal while entering the target market.

Furthermore, when entering a new industry, it is important to learn the organizational capabilities and partnering conventions of the target industry and adapt to them. The case company has defined its vision as entering the industry and after the first "probe" product, diversifying to other products, gaining a considerable market share and business volume. It has defined the Big Pharma and the academia (especially key opinion leaders) as their preferred partner types. Similarly, the desired partner candidates will have defined their preferences about partnering. An established player in the industry has certain assets to offer to a partner candidate, while a de alio newcomer with a large multinational corporation as its parent organization may offer other kinds of assets. Successful collaboration hence requires finding a point where these sets of preferences intersect and a win-win match between them can be created.

As one bears in mind the various challenges entailed by a de alio entry to a new market and an unfamiliar, complex industry with a new product, and the necessity to attract partner candidates willing to collaborate with a de alio newcomer, placing numerous non-preferences may prove a challenge while attempting to create a win-win situation with the potential partner candidates. This might also make it more difficult to reach the expressed business goals, namely obtaining a substantial market share and business volume for the product in the given time frame or window of opportunity, plus proceeding to expand the range of products based on the platform.

Furthermore, as the preferences and the criteria of the case company stem from the business logic of the parent and the home industry (material industry), they may be optimal for the home industry but not necessarily fully compatible with the business logic or partnering conventions of the target industry:

Considerations of what the others are used to encompasses not only the modes and contracts of partnerships, but the whole culture and behaviours during the process of forging and maintaining a fruitful partnership. Therefore, choosing the right mode is not the only success factor: what happens in the negotiations and during the whole partnership function as a thermometer on the quality of the partnership: the target industry informants as well as recent theories on partnering centred industries underline the trust and mutual sense of benefit.

Therefore, one of the learning goals for a de alio newcomer may be (with the help of an experienced target market expert) to expand their partnering palette by learning more ways of partnering. This means not only the organizational modes or contract conditions, but the process of creating and maintaining a mutual win-win match through behaviours and constellations prevalent in the target market and compatible with the target market conventions.

5. DISCUSSION

In the empirical part of this study (Chapter 4), I analysed the partnering motivations and preferences of the case company. In this chapter, the discussion of the findings takes the form of assessment of the compatibility of the motivations and preferences with each other and with the findings of network analysis and interviews, as well as theories. The focus is then placed in partnering with Big Pharma.

First, I will compare the case company partnering motivations with the partnering motivations in the other empirical data and the theories. Then I move on to compare the case company partnering motivations to the case company partnering mode preferences expressed in the interviews. After this, I compare the case company mode preferences to the modes typical to the biotechnology industry identified in the network analysis and the non-case company interviews of experienced target industry actors, to find if these are aligned. Similarly, I compare the preferences to the classic theories of entry modes and the more recent updates of those theories, biotechnology, industry life cycle and ambidexterity literature, to analyse the level of alignment. These comparisons are depicted in Figure 5.1. As a result, I made an assessment to what extent the preferred partnering mode selection or "toolbox" of the case company is aligned and adapted to the motivations and targets to be reached on one hand, and the target industry dynamics and conventions on the other hand.

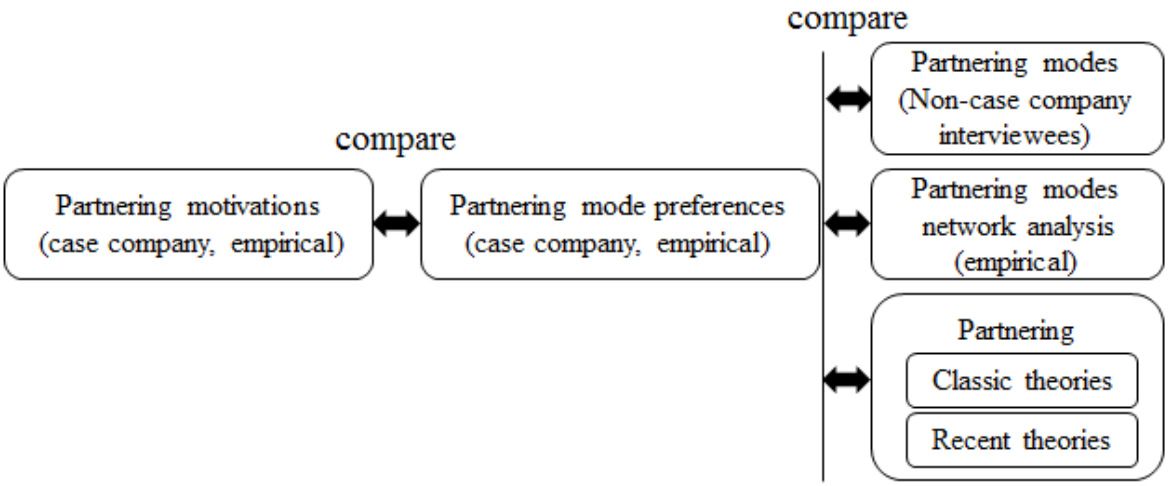

Figure 5.1. Systematical comparisons of findings and theory

5.1 Motivations for partnering

Altogether, the study identified two main categories of needs of the case company, learning and access, that is obtaining new knowledge assets and overcoming the barriers to access.

Three further motivational factors, competition (section 4.2.3), time and risk, were also identified. Case company interviewees considered partnering as an important, even obligatory tool to fulfil the needs, as a de alio entrant to the biotechnology industry could not learn everything nor position itself in the competition in-house, and the process was found to be frustratingly slow. Partnering was also found to be a familiar method to share and mitigate the high risks involved. Commercialization operation motivations that appeared in the empirical data and recent theories can be specified as follows in Figure 5.2.

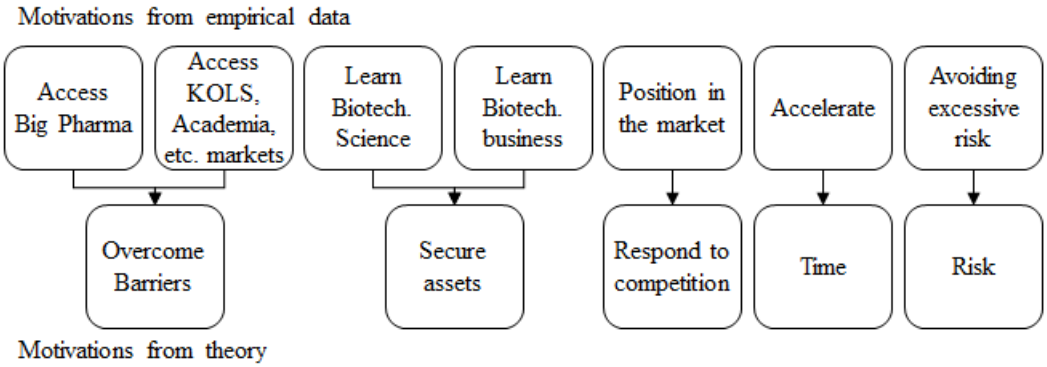

Figure 5.2. Mapping of partnering motivations in the empirical findings and theory

I found that the case company motivations of partnering identified in the empirical part are aligned with and supported by the motivations identified in the recent literature by Greis et al. (1995), Dunning (1995), Powell (1998), Chesbrough & Schwartz (2007) and Pisano (2006), the empirical network analysis and non-case interviews. Furthermore, learning and access were also identified as the two most prominent motivations for partnering in the network analysis. However, some concepts are interpreted differently: for example, mitigating risks is identified as an important partnering motivation in both classic and recent theories, but in the classic theories full ownership is considered "safe" and partnering "risky" while in the recent theories the opposite is true. Furthermore, risk in biotechnology involves profound uncertainty, while for home industry incumbent, the risk means big but carefully calculated monetary investment risks. The results of the comparisons are summarized in Figure 5.3.

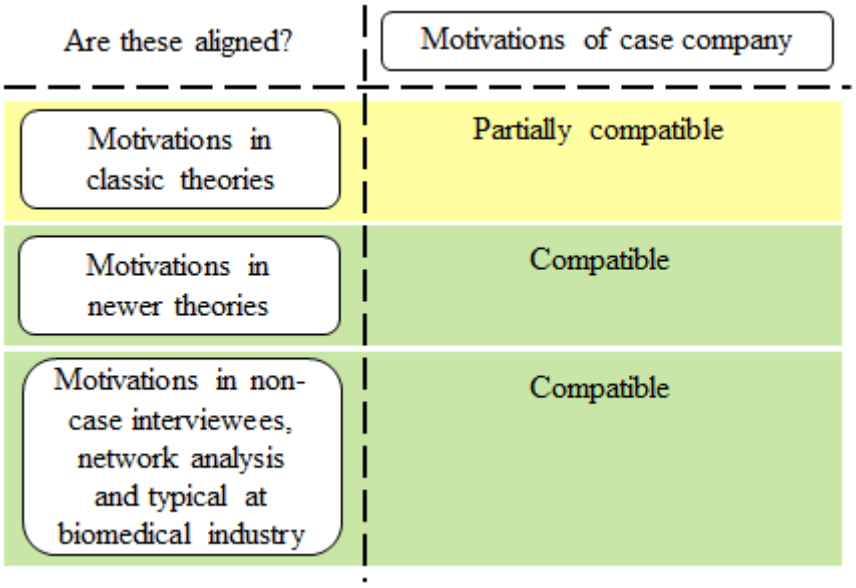

Figure 5.3. Partnering motivations: summary of the results of comparisons

In the empirical part of the study, the main target or ultimate goal of the case company was identified as accessing partnerships or customer relationships with Big Pharma, which target is typical in the biotechnology industry and hence compatible with the dynamics of the industry. Therefore, the discussion on with whom to partner (Section 5.3) will place a focus on the motivations and ways of partnering related to that target.

All in all, various interviewees of the study explicitly underlined that partnering is extremely important in the business. In the biotechnology industry in general, partnering has reached such an integral position in the dynamics of the industry that wishing to partner is considered obvious and not actually questioned. On the contrary, *not partnering* might require justifications. This is aligned with recent theories such as McCarthy et al (2007) and contrasts sharply with the traditional literature analysed by for example Dunning (1995) and Sharma & Erramilli (2004), where control through ownership was the primary option. In the biotechnology industry today, partnering seems to have become the primary option for many activities in the industry, and in-house mode comes second.

The beginning of this development trend was described by Dunning (1995) as he updated his eclectic theory of entry modes. This case study hence supports (in the biotechnology industry context) the findings of Dunning (1995) about the rise of the importance of partnering and provides an update to how the trend is developing. The snapshot update offered in this research carries specific importance, since the biotechnology industry is one of the industries in the forefront of this trend according to Pisano (2006), Powell et al. (2005) and Onetti (2014).

5.2 Possible modes for partnering in the biotechnology industry

The case company preferences found in the study, similarly to classic manufacturing theories, are based on maintaining control and ownership through in-house activities if possible. Contractual relationships come second, yet not considered as partnering but simple transactions. Sharing and equity-related partnering are mostly considered exceptional and non-preferred, a special case requiring strong justifications. Recent theories prefer the opposite: long-term trust based partnerships with shared equity or contracts, and full-ownership is considered an exception.

Therefore, the identified case company preferences for how to partner were found to be only partially aligned with the partnering motivations of the case company, the biotechnology industry conventions, and recommendations expressed in the interviews. Furthermore, the preferences are more congruent with traditional manufacturing industry theories of market entry than the recent innovation-centred and biotechnology industry related literature. This can be observed by examining the key principles of the classic theories reviewed in chapter 2 which compares the case context with the tenets of the classic theories, which in this case would suggest low control modes such as licensing and exporting. This seems to be in line with the company who expressed their preference for exporting, licensing, and partnering options on a non-equity basis, without rendering the product development or production to a partner. The results of comparisons are summarized in Figure 5.4 and elaborated in the following.

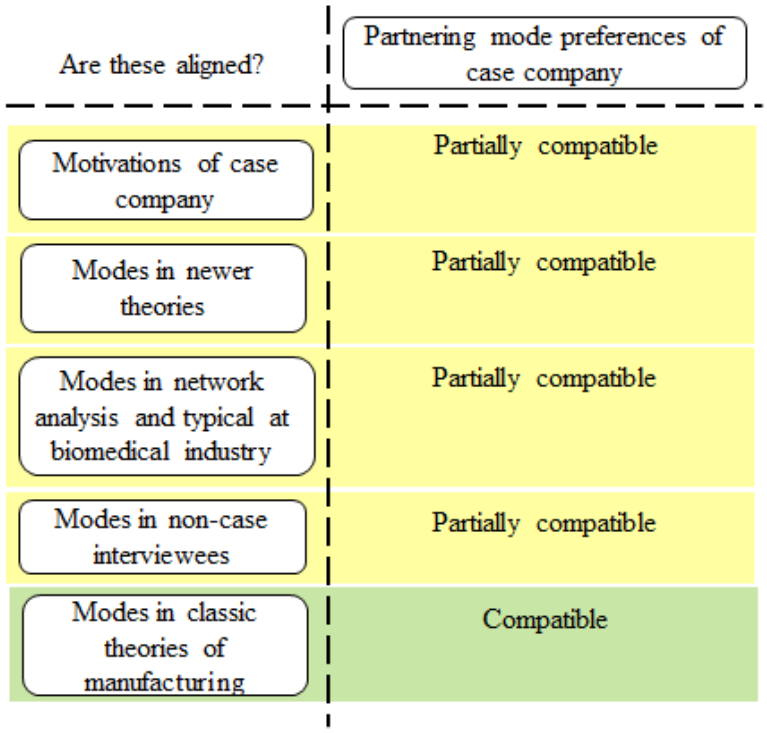

Figure 5.4. Partnering motivations and modes: summary of the results of comparisons

One of the reasons of the preference alignment with classic manufacturing ideals may be that according to the interviewees, the mode preferences of the case company stem from home (material) industry experiences, especially from a set of negative experiences approximately 15 years earlier, later formulated and reified in parent company "thumb rules" or policies. This finding is supported by Hennart and Slangen (2014) who report that repeating past choices is common:

> *Various studies have already argued extensively that mode choices are likely to be replications of prior choices made by the firm itself and its peers, with many of these studies reporting supporting evidence (Hennart & Slangen 2014, 118)*

This phenomenon also constitutes a possible avenue for further research.

The finding that the mode preferences are compatible with the classic theories and only partially compatible with the recent theories may signal challenges in the commercialization and market entry processes. The classic theories were designed for the traditional manufacturing industry market entries, and it would be preferable that while entering the biotechnology industry, the mode preferences be compatible with that and no longer with the classic theories. Furthermore, interpreting Dunning (1995), a tradeoff is inevitable between needing to let go some of the classic-style control in order to gain the benefits of partnering. In partnering centered dynamics, this loss of control is balanced with trust,

business model alignment and reciprocity. The mode preferences in detail can be seen in Table 5.1.

Table 5.1. Summary of comparisons: mode preferences, theories and target market conventions

Entry/Partnering modes	**Recent theory (eclectic update)**	**Classic theory**	**Network analysis**	**Case company preferences**	**Typicality in target industry**
Deep scientific involvement	Horizontal	Contractual	Learning	Non-preferred	Typical, general
Basic level scientific collaboration	Horizontal	Contractual	Learning	Preferred	Typical, general
Supplier (in/out)	Vertical backward	Contractual	Access	Preferred	
Joint development, etc	Vertical backward / horizontal	Contractual	Learning	Preferred	Typical, universities, start-ups
Restricted marketing activities	Vertical forward	Contractual	Access	Preferred	
Distributor	Vertical forward	Contractual	Access	Non-preferred	Typical, startups
Licensing (in/out)		Contractual	Other	Preferred	Typical, Big Pharma and R&D companies
In-house / full ownership		Full ownership	Other	Preferred	Exceptional; Core advantages
Acquisitions		Full ownership	Other	Preferred	Typical, Big Pharma and R&D companies
Sales via subsidiaries of the parent company		Full ownership	Access	Non-preferred	Typical, famous MNCs
Internal start-up		Full ownership		Preferred	
Joint ventures		Partial ownership	Other	Non-preferred	Typical, big and small companies R&D
Minority shares/corporate venturing		Partial ownership	Other	Non-preferred	Typical, big and small companies R&D
External capital with mentoring		Partial ownership	Learning / Other	Non-preferred	Typical, start-ups
Spinoff		Partial ownership		Non-preferred	Typical, universities
Production	Vertical backward		Other	Non-preferred	
Extroverted visibility				Non-preferred	Typical, general
Exit				Non-preferred	Typical, start-ups

From the Table 5.1 it can be seen that the preferences are only partially aligned with the key partnering motivations of learning and access expressed in network analysis, as the preferences lean towards prioritizing full ownership, control and in-house activities, or contractual arms-length transactions, in for example marketing and sales, product development and production. Partnership potential is mostly seen in customer relationships, where the case company acts as material supplier to the other party. In the scientific research activities, the company does not wish to enter deeply, but prefers to only sell material and obtain the necessary references from customers, that is, via transactions. Developing applications is also considered as an activity of the customer, not the material provider. Considering distribution partnerships, the positive potential side of valuable learning or access opportunities had not been recognized or was overshadowed, as the activity was mainly seen from the point of view of losing control of the customer contact to the distributor.

In general, the atmosphere reflected in the interviews seems to be that the company wishes to participate in the business of the biotechnology target segment, but does not wish to get deeply involved in the continuous sharing and presence in the relationships and networks. This contrasts somewhat with the success principles that experienced biotechnology industry actors expressed in their interviews: maintaining preferably long-lasting relationships in which the partners build synergies, common goals and trust. In the literature, this is expressed in terms such as aligning the partners' business models for mutual benefit (Chesbrough & Schwartz, 2007).

Therefore, the awareness of the motivations and needs regarding the target market is there, but the partnering mode selection and how to maintain partnerships "toolbox" of the case company is not yet fully aligned and adapted to the motivations and targets to be reached on one hand, and the target industry dynamics and conventions on the other hand. The expressed preferred mode selection includes many constraints, which leave the mode selection "toolbox" of the de alio entrant perhaps smaller and more limited than is needed to reach the ambitious targets of the diversification and commercialization process.

Indeed, there are also cases when it is normally unwise for a company to partner (see the core competencies, Chesbrough & Schwartz, 2007), there are less popular modes also in the biotechnology industry, and not every partnership opportunity is worth seizing. However, limiting the selection of modes beforehand may limit the opportunities of creating a win-win match with partner candidates and hence jeopardize the value-creating and value-capturing

in the target market through fulfilment of the motivations of learning, accessing and competing in the target market in a timely and risk-mitigating manner. Moreover, although learning from experience is one important way of accumulating knowledge, the preferences expressed in this case were based on generalized home industry business logic and historical data, instead of the target market business logic and real time context-specific analysis. Therefore, practical learning and adaptation to the biotechnology partnering conventions and capabilities would be the recommendable next step.

The empirical findings of a wide array of partnership modes classified as typical in the target industry are congruent with the argument of Powell (1998) that a heterogeneous portfolio of relationships is typical, even indispensable in the industry. Therefore, one of the ways to align the partnering mode selection would be to create the heterogeneous portfolio of relationships typical in the biotechnology industry, presented in the literature review. Some types of partnering dynamics are typical especially in the target market (that is, biotechnology industry) and perhaps not so prominent in other industries, such as the home market (that is, material industry) of the case company.

One of these typical dynamics is the deeper and more multifaceted meaning of networks. An example of this is that although an IPR portfolio is certainly important, a portfolio of network ties (or a network profile) is equally important. Powell (1998, p. 233) emphasizes that it is crucial for companies both large and small to learn from collaborations and construct a heterogeneous portfolio of collaborators that provides access to both the emerging science and technology and the necessary organizational capabilities.

Moreover, he argues that a firm's portfolio of collaborations is a resource, an important part of a firm's value and a signal to markets, as well as to other potential partners, of the quality of the firm's activities and products, because in biotechnology, innovation happens in networks of learning, rather than individual firms (Powell 1998, p. 229, p. 231). Furthermore, Powell (1998, p. 230) reminds, it is no longer necessary to have exclusive, proprietary ownership of an asset in order to extract value from it. Hence, a limited partnering mode selection toolbox may hamper the creation of this key asset, the network portfolio, while on the other hand, taking steps to create a heterogeneous portfolio may offer valuable opportunities to adapt the present mode selection and partnering conventions to the biotechnology industry.

Nevertheless, what comes to the specific key contents of the heterogeneous portfolio in this de alio case context, the empirical findings suggest certain directions. To start with, the specific motivations and targets of partnering with each key group were identified in the interviews. The role of the Key Opinion Leaders, researchers and universities is to create visibility, references, application notes, articles and legitimation, possibly help create a unique application using the material. The role of an experienced, large distributor would be to create access, visibility and user feedback plus act as a mentor of the newcomer in the new industry. The Big Pharma is the ultimate target and goal of the activities, as it is considered that the business will not be big or profitable enough without the Big Pharma as customers. The role of the CROs in the empirical findings is somewhat debated: they are important, but some informants argue that CROs can only be accessed via Big Pharma (who give them instructions) while other informants maintain that CROs can help to access Big Pharma. Altogether, the key groups mentioned above can form a heterogeneous constellation of partnerships, recommended by Powell (1998) and needed in order to reach the expressed goals. This logic is depicted in Figure 5.5 which extends the one presented (Figure 2.8) in chapter 2.

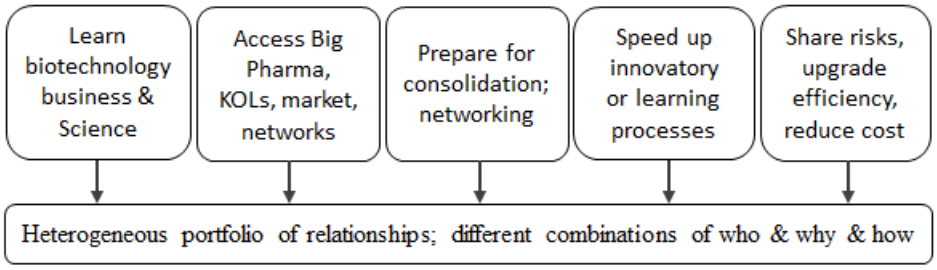

Figure 5.5. Relationship between the partnering targets and the partnering portfolio

Following this, Table 5.2 presents a summary of the findings on matching these partner types with possible partnering modes. However, one must bear in mind that the case company has not yet decided upon a definite business model, and due to this reason, the partnering options also cover a wider range.

Table 5.2. Matching key partner type with possible partnering modes

Key partner type	**Possible partnering modes depending on the business model chosen**
Key Opinion Leaders in the target segments	Scientific (basic/deep), supplier
More Universities	Scientific (basic/deep), supplier
Develop an application jointly with researchers	Scientific (deep), co-development

Distribution partnership with the eye on enhancing learning and multichannel strategy	Sales and marketing via target market intermediary (non-exclusive, multi-channel)
Big Pharma	Research, co-development, supplier, licensor
CROs	Research, co-development, supplier, licensor

5.3 Possible ways for partnering with Big Pharma

In the empirical part of this study, the case company expressed that partnering with Big Pharma is their most important goal in partnering and customer relationships. The case company preference would be to act as a supplier, material provider for Big Pharma. Another option would be to engage in a licensing arrangement with them. The long term goal expressed was to create a platform with the first product as a basis for a range of products in the long run.

According to the findings from the network analysis and non-case company interviews in the empirical part of this study, the supplier and licensor roles are possible to reach with Big Pharma. However, it requires substantial groundwork because due to the symbiotic partnering dynamics of the biotechnology industry (Pisano, 2006, p. 91), practically everybody has the same goal as the case company, to partner with the Big Pharma. Furthermore, according to the network analysis in this study, Big Pharma may maintain hundreds of partnerships. Both of these factors means tough competition and differentiation from the competitor crowd, which was discovered in this study to be numerous, while at the same time the differentiation of the case company product from its competitors is still in process. This is also reflected by the case company experiences of the direct meetings and pitching of the product with the Big Pharma, which ended up with the Big Pharma losing interest in the product and choosing a competing product, as the case company did not have all the answers ready to the questions posed. This signals the requirement of deep scientific understanding typical of biotechnology industry (Pisano, 2006). Therefore, before the desired partnerships with the Big Pharma can become reality, it seems likely that the case company needs to consciously build steps towards their goal.

On the other hand, although experienced biotechnology industry professionals considered the material supplier and licensor roles possible to reach for a de alio company if they have the backing of the large parent company, they also expressed concerns that these roles might not be recommendable considering the long run, even recommending to avoid “going only with a material”. Some of the case company interviewees also expressed concerns of the

fluctuation of the sales of the product according to the Big Pharma customers' whims. Furthermore, some pondered that possibly the material only might not be big enough business to fulfil the parent company market share or revenue targets unless practically all Big Pharma companies chose to use the product.

However, another possible option for partnering with Big Pharma was also discovered in the empirical findings of this study. The most prominent was a research collaboration after developing an application for the product for example with the academia. This reflects both the need to draw the attention of the Big Pharma and differentiating from the competitors by having an application half-ready before pitching or negotiating for a partnership, and also the need to develop a less vulnerable position in the market by having more than only a material.

Moreover, this recommendation is congruent with the findings of the empirical part of this study and biotechnology literature, that the Big Pharma relentlessly scan the networks for new ideas, but no longer wish to enter the risky development phase (Pisano, 2006, p.91, pp. 105-106). Instead, they prefer to wait for the start-ups to develop the ideas further and see which one of the competing crowd prevails. In this sense, they have exactly the same preference as the case company who hopes for the Big Pharma to do the further development of the product and its applications. Hence it seems unlikely that the case company could start a relationship with the prevailing conditions as neither of the parties would be willing to develop the applications. The situation corresponds to a non-alignment of business models lacking the win-win element of a successful partnership (Chesbrough & Schwartz, 2007).

As mentioned earlier, using any mode, the case company will need to build the steps towards the partnerships with Big Pharma. If not by developing an application, the differentiation from competitors would need to be done with the help of other type of legitimation superior to competitors. According to the empirical findings, this can be done for example through references and scientific papers from the academia, especially the Key Opinion Leaders (KOLs) in the segment. However, this strategy encounters practically the same challenge as the direct Big Pharma contacts: according to the interviewees, practically everybody wishes to partner with the KOLs, and for this reason, the KOLs are saturated with propositions and marketing material. As a result, the companies need to have legitimation already in place, that is, convince them that they want to use the product but also to compensate the valuable time of these "star scientists". According to an experienced biotechnology professional, the

more affordable and less saturated young scientists, however, are not an option fast enough as the only strategy, hence one needs to work with at least the second-most-senior KOLs in order to succeed within the window of opportunity. Furthermore, national data and researchers only were described as insufficient; the KOLs involved should be international.

While the legitimation and differentiation of the product from its competitors is in process, it is not easy to convince customers, hence the references are key. As at the same time the case company places constraints to the partnerships, this may cause challenges to obtain references as well.

As a conclusion, it seems that accessing the partnerships with Big Pharma may require efforts, investments and involvement beyond the size, breadth and depth for which the case company expressed preference in the interviews. Ironically, it seems that the preferred strategy of selling material directly to Big Pharma and not getting very deeply involved in the industry, its networks and the science (following the home industry business logic), seems unlikely to succeed in the biotechnology industry, because getting involved in the networks, the industry and the science seem to be a prerequisite for (and not a result from) reaching the most coveted partnerships as well as the substantial market share or revenue targets.

As a result, the discussion returns to the issue of how in biotechnology industry, a firm's portfolio of collaborations is a resource, an important part of a firm's value and a signal to markets, as well as to other potential partners, of the quality of the firm's activities and products. This is because in biotechnology, innovation happens in networks of learning, rather than individual firms, and it is no longer necessary to have exclusive, proprietary ownership of an asset in order to extract value from it (Powell, 1998, pp. 229-231). In order to fulfil the ultimate goal and target of partnering with Big Pharma, creating and capturing value and market share before the window of opportunity closes and shakeout of firms begins, the prerequisite may be to create a heterogeneous portfolio of relationships as resource and a signal to the Big Pharma, KOLs and other actors in the industry.

6. CONCLUSIONS

In this chapter, I begin by summarizing the case study and presenting the answers to my research questions. Then, I continue by stating the theoretical contributions this study brings to the field of partnering and entry mode theory. Moreover, I draw managerial implications based on the empirical and theoretical aspects of the research and finally I suggest avenues for future research.

6.1 Summary

It is important to study firms finding and creating new markets, diversifying and entering them; especially when experiencing pressure in their traditional, mature markets and during the present turbulent times in the global economy. The new knowledge and contribution to the theoretical field offered by this study is created by combining classic and recent theories of partnering and market entry in a theoretical framework designed to study partnering in de alio context, and applying it to analyse a challenging case. The strategy context of introducing a new product into an emergent market in an unfamiliar industry is extremely demanding, original and interesting. The target industry itself is ranked one of the most high-risk and complex, involving deep science, regulation, symbiotic partnering and learning race competition dynamics. On top of it, the case company faces the extra challenges of de alio diversification, ambidexterity and the entry timing into an emergent market stage, with the competition accelerating towards consolidation. All these factors contrast with the case company home industry which is more calculated and mature, and where the company enjoys the position of an incumbent. Even the competitive advantages the company has in the home industry are not guaranteed to apply in the target industry without adaptation. For all the above mentioned, a target industry partner is important and the partnering issues of de alio companies merit attention.

Furthermore, the research is inspired by the observation that neither classic nor recent literature on market entry modes quite covers the entry of traditional manufacturing MNCs with a new innovative product to unfamiliar, emergent markets with completely different business logics. As Dunning argued in his update of the eclectic theory in 1995, globalization is changing the traditional manufacturing industries towards the rise of importance of partnering. The literature is keeping up with the change by covering the changing factors one by one. However, an overall picture has not formed yet (as a contrast to the classic,

overarching paradigms), which is indicated by the need to combine various recent theories in order to research a case that combines various new factors.

In order to fulfil the academic objective of this study, I have combined, complemented and extended existing partnering and market entry theories to the extent possible in a Master's Thesis, to provide new insights into their applicability in analysing de alio market entries in complex global industry contexts. The aim has been to comment especially on the topics where contribution is solicited in the academic community, such as the role of ecosystems, and networks in entry processes, a processual view of partnering and market entry, entry learning, the link between a firm's resource-capability mix and entry timing, and innovation-entry relations (Zachary et al., 2015, p. 1389, p. 1393; Journal of Management Studies 2016).

The main research problem of the present study focused on how companies can manage the challenges of de alio market entry by forging partnerships. With whom, why and how to partner in the case context?

I investigated the research problem by asking who are the key partners and why de alio needs to partner in this context. More specifically, what are the motivations and targets for partnering? Furthermore, I asked which are the possible ways or modes how to partner in the biotechnological industry and especially with the Big Pharma.

The ultimate key partner group and target of the case company was identified as accessing partnerships or customer relationships with Big Pharma (for example research collaboration / supplier depending on the business model), which is a typical target in the biotechnology industry and hence compatible with the dynamics of the industry. In order to reach the target and more generally, to obtain competitive advantage, create and capture value in the biotechnology industry, a heterogeneous portfolio of supporting partnerships is necessary. Key partner groups for the portfolio are universities, Key Opinion Leaders (KOL) in the target segments, a distribution partner with the eye on enhancing learning and multichannel strategy and Contract Research Organizations (CROs). However, one must bear in mind that the case company has not yet decided upon a definite business model, and due to this reason, the partnering options also cover a wider range.

Furthermore, the five most prominent commercialization operation motivations that appeared in the empirical data and the recent theories analysed in this study are to overcome barriers, secure assets, respond to competition, speed up processes and mitigate risks. The

de alio context and emerging target market further intensify the need to learn and access rapidly. Some of the necessary assets are not available without the help of a partner, or obtaining them alone would be too slow. Moreover, in biotechnology, partnering has reached such an integral position that wishing to partner is considered obvious and not partnering might require justifications.

Then, investigating which are the possible ways how to partner, the study showed that various aspects must be considered. First, the partnering mode preferences of the case company leaned towards ownership and control, plus market transaction type contracts, non-preferring shared equity. The expressed preferred mode selection includes many constraints, which leave the mode selection "toolbox" of the de alio entrant perhaps smaller and more limited than is needed to reach the ambitious targets of the diversification and commercialization process in time for the industry shakeout phase. This signals that further fine-tuning and adaptation to the biotechnology industry conventions may be necessary.

However, the transition from this traditional partnering mindset to the target industry one requires a complete change of perspective, because the target industry actors' preference is the opposite. It is based on long term-partnerships, aligning business models and win-win-collaborating as default, while ownership is reserved to core advantages. It means losing some of the control and compensating this by building trust, as a prerequisite to gain the partnering benefits. Furthermore, operating in the target industry requires maintaining a varied portfolio of relationships as a resource and a signal to others. All in all, the target industry stresses the processual view of crafting and maintaining partnerships instead of mode choice as a one-time event.

Furthermore, the results suggest that there are two main ways how to partner to position the product in the market. One is adopting a material supplier role and entering the science and business networks plus regulation only in limited depth and breadth. This mode and position was preferred by the case company and was also deemed possible in other findings. However, it was considered a fragile position even by case company informants and an experienced biotechnology industry informant recommended against it. For executing this model, the partnering mode selection may require adjustment for example concerning distribution. The other main position requires deeper and broader involvement in science, partnering networks and developing applications. This approach was recommended for a stronger market position,

more added value and market share, with "big enough" business volume compared to case company targets.

Finally, the Figure 6.1 summarizes my contributions in the form of a partnering dynamics framework for a de alio company in the biotechnology industry.

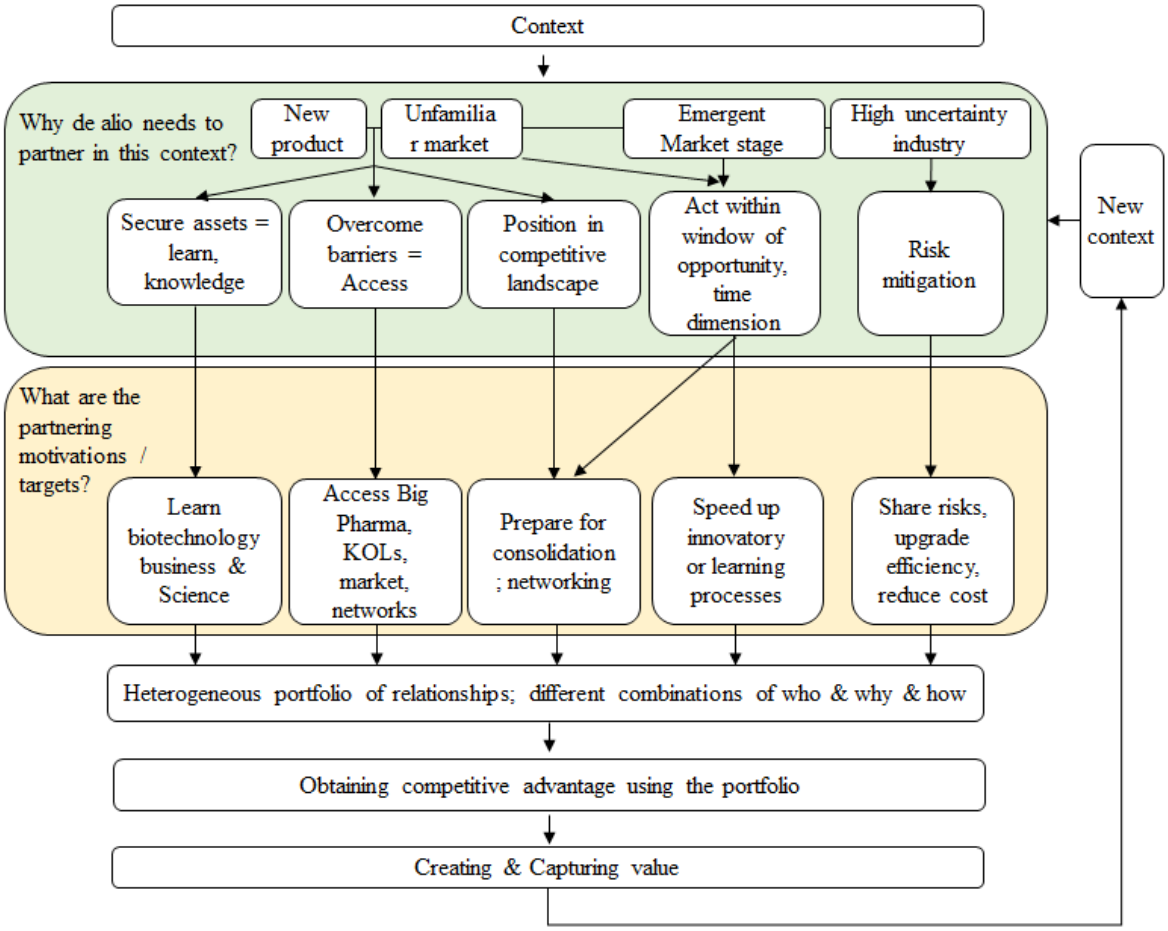

Figure 6.1. Partnering dynamics framework for a de alio in the biotechnology industry

6.2 Theoretical contribution

The theoretical contribution offered by this study is manifold. First of all, this study contributes to the literature development which follows the shift in global industries from traditional manufacturing towards innovation- and partnering-centeredness. The study supports the findings of Dunning (1995) on the rise of the importance of partnering. The study found that in biotechnology, partnering has reached such an integral position that wishing to partner is considered obvious and not partnering exceptional. This is also aligned with the recent partnering and market entry theories and contrasts sharply with the traditional literature, where in-house activity, control and ownership were the primary option. This

study provides a snapshot update to how the trend is developing. The update carries specific importance, since the biotechnology industry is one of the industries in the helm of this trend.

As my comment to the debated saturation of the literature, I wish to point out that the reality that the literature investigates will not stop from changing and hence the literature will never become "ready" but needs to renew as well. At the moment the field is rather active and new knowledge is solicited explicitly (Zachary et al., 2015, p. 1389, p. 1393; Journal of Management Studies, 2016; Hennart & Slangen, 2014). With this study, I have contributed to some of the solicited themes and some of them I refer to suggestions for further research (section 6.4).

Moreover, the findings of this study support Powell's (1998) theory that in the biotechnology industry, a few key partnerships are not usually enough, but a whole portfolio of relationships is necessary. This study also contributes to the theory by exploring the possible de alio specific contents of the partnership portfolio in biotechnology industry and how it is linked with the motivations for partnering, the business model options and creating a win-win or business model alignment with a partner.

Furthermore, this study supports the conclusion of Pisano (2016) that it is important that the various partnerships provide the company with learning on both the biotechnology science and the organizational capabilities and business conventions.

Moreover, this study supports the theory of Powell (1998) underlining the importance of the processual view of partnering and the various aspects of learning such as learning from collaborations, learning how to partner and maintain relationships in the target market context.

Furthermore, this study supports the theory of Dunning (1995), Chesbrough & Schwartz (2007) that it is key to maintain preferably long-lasting relationships in which the partners align their business models for mutual benefit, build synergies, common goals and trust; also in contractual arrangements such as distribution (which in the classic views were considered mere market transactions).

However, I also find the classic manufacturing market entry theories and this study mutually supportive in some respects. Despite the changes in the global economy business dynamics in many ways (such as transition from nation-state centeredness to a global, multi-level perspective on locations), the classic theories' market entry preferences of control,

ownership and in-house activities still apply in the home industry of the case company, that is a mature, traditional manufacturing industry.

In addition, according to the case company interviewees, the mode preferences of the case company stem from home (material) industry past experiences, especially from a set of negative experiences approximately 15 years earlier, later formulated and reified in parent company "thumb rules" or policies. This finding is supported by Hennart and Slangen (2014) who report that repeating past mode choices is common and well documented in the literature. Repeating past modes may cause biased choices and therefore, whichever mode is chosen, it is advisable to choose modes in a context- and partner-specific manner, as the home industry best practices may not be directly applicable in an industry with different dynamics.

Due to the challenges posed by different dynamics, the study supports Ansoff's (1957) theory which names diversification to an unfamiliar market with a new product as an extremely demanding strategy of market expansion. The findings of this study point out several internal and external challenges that a de alio entrant needs to tackle successfully in order to prevail in the target industry, while at the same time operating in the home industry as well (ambidextrous).

Further contextual challenges are posed by the entry timing. In the entry timing and industry life cycle literature, it is debated who has advantage in the emergent stage. The study indirectly supports the review findings of Peltoniemi (2014) who concludes that de alio incumbents find it very challenging to enter another industry where the market is in an emerging stage, due to less agility compared with start-ups. However, this study does not fully support the findings of Peltoniemi in the respect that de alio incumbents avoid entering in the emergent stage but tend to enter later, in the growth phase. The case company did look for other options before embarking on this venture, however, eventually the challenges of the emergent market phase did not deter it. This study supports these observations by pinpointing the challenges (and possible solutions) posed by this kind of a market entry in the case context, namely the time pressure caused by the window of opportunity before consolidation, difficulty of positioning in a market that has not yet taken form, competing against start-ups that are not affected by the restrictions posed by a parent company (yet do not enjoy the benefits either) and ambidexterity with two markets in different stages.

The findings of this study also support the disruptive innovation theory by Christensen (1997) as I find that the incumbent case company in a mature industry has a strong incremental

innovation tradition and transitioning to another mode of action proved to be quite challenging internally ("the innovator's dilemma"). The case company did embark on a transitional journey to another "s-curve" in order to create growth, as Christensen & Raynor (2003) recommends ("the innovator's solution"). However, the case novelty and incongruence with Christensen is that the case company is not executing the disruption or new s-curve in its home industry, but in a completely different one. This strategy does not in itself protect the mature home market business from disruption (which is Christensen's aim). Instead, the strategy aims to tackle the home industry structural change by expansion. Furthermore, the findings of this study on the case target industry do not support Christensen's assumption that the aim of the companies in an industry is to disrupt the incumbents. Instead, this study supports the findings of authors such as Pisano who claim that in biotechnology industry, the companies do not aim to disrupt incumbents or turn into one, but form a symbiosis with the incumbents.

Also, this study contributes to the literature by offering a view to the internal and external challenges and possible solutions for the companies who are in the ambidextrous, diversifying renewal process from mature, traditional manufacturing markets into new, innovation and partnering centred ones. The study shows that the process is not easy and merits further research, as the theories have tended to concentrate on only one market or the other, and the ambidexterity literature has concentrated mostly on ambidexterity concerning the same industry or neighbouring ones - not diversification with triple novelty. Due to these reasons, in order to analyse the case, I needed to combine various theories (life cycle theory, ambidexterity model and diversification theory) in a novel manner which is presented in the Section 2.1.4.

This study supports the ambidexterity model theory in the sense that while acting simultaneously in two industries, the case company experiences the internal friction between the parent company core and the new venture, whose target market dynamics and industry life cycle phases are completely different. As recommended by the ambidexterity model structural separation, the new venture operates as an independent team. However, it is still placed within one of the core departments. During the research project, the team was relocated from the parent company global headquarters to what might be called a "mini-cluster", where it resides close to other target industry actors and the academia. The new venture is also steered by a senior executive team as suggested by the ambidexterity model. The senior team receives their information through the common CEO of various internal

start-ups and therefore, various levels of information filters, internal education and selling are involved.

However, despite these structures and dynamics that are congruent with the ambidexterity model, pressure of the core towards the new venture is palpable. It is not possible to conclude from the data, from which sources or level exactly this pressure and the perceived traditional preferences originate. This would however make interesting further research. Also, there is a paradox in the sense that the structures of the new venture are somewhat separated from the core (assumedly to protect it from the pressure of the core, as ambidexterity model suggests), yet the parent company expresses explicitly that it does not foster ventures unless they are going to fit clearly and rationally as integral parts of the parent company business. Furthermore, the parent company traditional guidelines on partnering are strongly present in the steering of the new venture. From the case data it is not possible to pinpoint how exact is the match between the internal start-up structure of the case context and the ambidexterity model structure. Despite this, the conclusion from this study contributes to the ambidexterity theory: it signals that no amount of structural and physical separation from the parent company core can provide the new venture with possibility to operate with different dynamics, if the parent core traditional ideas are operationalized through the internal start-up funding requirements.

The data does show, however, that the venture informants are somewhat more target industry minded than the parent company ones. This shows that the venture does function as a learning probe but the learning and new information flows do not penetrate the case company layers immediately, automatically or uniformly. This supports the tenets of Powell (1998) that the company capabilities of absorbing new knowledge are extremely important and need to be fostered consciously.

All in all, studying this intriguing case with an extremely demanding context has contributed to previous understanding in many ways. Furthermore, it has shown the challenges of renewal in practice. However, it has also indicated possible paths to follow to address these challenges of de alio market entry and partnering. I will summarize these practical contributions in the following section.

6.3 Managerial implications

Drawing from the empirical and theoretical aspects of this study, I have made the following key observations concerning the managerial aspect of partnering decisions were made.

1. Building a partnership portfolio as both signal and resource

A firm's portfolio of collaborations is both a resource and a signal to markets and potential partners, of the quality of the firm's activities and products in the manner of a professional profile or CV. In the biotechnology industry it is equally important and valuable as an IPR portfolio. Choosing entry modes and partners, promoting heterogeneity and interdependence is key. Utilizing an extensive "toolbox" of entry modes, a company can choose the most appropriate one for each context, partner and need. It is an asset to aim for a portfolio that provides access to both the emerging science and technology and the necessary organizational capabilities. Key partner group ideas for the portfolio are Key Opinion Leaders (KOL) in the target segments, more universities, developing an application jointly with researchers, distribution partner with the eye on enhancing learning and multichannel strategy, Big Pharma (for example research collaboration / supplier depending on the business model), Contract Research Organizations (CROs).

2. Being visible in hotspots and clusters

Being visible in hotspots and clusters that have strong assets supporting innovation and opportunities for networking creates synergies. It may be possible to work also via researchers' networks nationally and internationally: Are the expatriate Finnish researchers/Big Pharma employees one potential contact base in the hotspots?

3. Assuming a network moderator role

It is more recommendable to assume a network moderator role instead of seeking to monopolize the returns from innovating activities and forming exclusive partnerships with only a narrow set of organizations. According to research, successful firms position themselves as the hubs at the centre of overlapping networks. Learning, visibility and network access value may be obtained from leveraging the national network and clusters with the case company as (one of) the coordinator(s), because national biotechnology networks are integral parts of the international networks. In order to access Big Pharma collaborations, the company may wish to develop a link between Big Pharma and academia and act as a moderator in between.

4. Utilizing parent company size and experience to attract partners

Taking advantage of large company backing is an asset that many start-up competitors do not have. This includes accumulated knowledge, managerial and organizational experience, resources and capabilities; the ability to learn after entry; large company stability image and resilience, common governance and multinationality. It is important to convince partners that the company is in the business for long term, in order to balance their possible doubts on a new entrant with less experience.

5. Adapting a company's partnering capabilities to biotechnology industry

Competition in biotechnology is a learning race. Competition takes place simultaneously on parallel tracks: one involves learning from collaborations, the other concerns learning how to collaborate. It is key to develop an excellent ability to absorb knowledge, and disseminate and utilize it inside the organization so that the company has both access to knowledge and capability to utilize it and build on it. Learning and adapting to the conventions of biotechnology partnerships is important, especially fine-tuning the company ability to develop relational skills and mechanisms through which information flows.

6. Engaging in co-development partnerships

Co-development can significantly reduce R&D expense, expand innovation output, open up new markets that may otherwise have been inaccessible and discover new value creation opportunities previously unidentified. Most importantly, aligning business models with the partner increases the chances that the partnership can be sustained and perhaps expanded. The subsequent projects are faster, and more profitable. To sustain co-development partnerships, they need to be designed and implemented carefully. It is important to define the business objectives and articulate the business model. Also, study and understand the partner's and others' business models in the industry. Moreover, it is necessary to assess the capabilities you and the partner candidates have and need. Then, classify the capabilities as core, critical and contextual according to their role in the business model and negotiate partnerships accordingly. Concentrate on the "critical" capabilities that bring the most added value through partnerships. Next, determine the degree of business model alignment with partner and create win-win. Finally, in managing the partnership, it is important to think of future collaborations – not just the current need.

7. Managing partnerships actively

Finding mentors can help the company to maintain the partnerships and guide the company while adapting the partnering capabilities hands-on, by actually partnering. Most firms also have key individuals who function as network managers," marriage counsellors" and honest brokers, providing the glue that sustains relationships between parties who have ample opportunities to question one another's intentions or efforts. According to the literature, the focus of partnerships should not be too closely on the transactional details; but in adapting the company's abilities to do relational contracting and building synergy-based relationships in the biotechnology industry way. As Pisano (2006) argues, "whether value will ultimately be created depends on the execution of the [partnering] project".

6.4 Suggestions for further research

The study gave rise to various potential avenues for further research, which I will comment upon in this section. These are learning in de alio context, ambidexterity in de alio context, location issues (such as distribution strategy, regulation, clusters and hotspots), creating win-win, aligning business models and maintaining partnerships, and entry timing (for example de alio in the shakeout phase and the supposed following growth phase).

Firstly, learning in de alio market entry was a central theme in this study, and contribution to the entry learning theme is explicitly solicited in the academic community. Potential questions concerning the theme are for example: How do the de alio learning processes in partnerships take place in practice (may not be possible for researcher outside the company due to confidentiality)? What are the special de alio challenges of learning in a partnership and how can they be alleviated? How can de alio learning be promoted and accelerated?

Secondly, ambidexterity was a key contextual factor, the relationship between the parent and the venture affecting every key aspect of the commercialization process. Potential questions are for example: The parent wants the venture to become an integral part of the business in the future - how do the two different industries coexist in the core of the same company? How does this aspiration correspond to the ambidexterity theories? How much and in which ways does the home industry business logic affect the new venture despite the internal start-up structural separation solution? Through what kind of practices can the adaptation to the conventions of another industry be done when the new venture is considered a learning probe for the parent company in de alio context? What effects does the structure have on the

learning and knowledge sharing dynamics inside the MNC? What does the internal start-up with a completely different industry innovation mean to the identity and internal dynamics of the MNC?

Thirdly, location issues were touched upon in the study yet further contributing to the understanding of the multi-layered reality of global industries would be interesting. Potential questions are: How can the de alio solve the distribution question involving reaching the customers and tackling the varying regional regulations and challenges and other practical issues while maintaining contact with the customer? Pros and cons of direct sales and marketing from headquarters, versus via company-owned subsidiaries versus using a distributor versus a multichannel strategy? What role do clusters or hotspots play in a de alio market entry? How can they help de alio commercialization processes? During the project, the team moved from parent company headquarters to a target industry cluster. How did this affect the commercialization project?

Fourthly, it would also be interesting to conduct follow-up studies on the aspects of de alio partnering that were not part of the longitudinal scope of this case study. Potential themes would be: How does a de alio company create win-win propositions with potential partners, align business models with partners and maintain partnerships successfully (requires full confidentiality, may not be possible for researcher outside the company)? How does the situation of the de alio company evolve as the target market matures more? Are the developments supported by the theories of supposed rise of the dominant design, consolidation, shakeout of firms and the following growth phase?

Furthermore, the following questions on which contribution is explicitly solicited in the academic community at present (Journal of Management Studies, 2016), are congruent with this study and would make interesting further research:

> *What are the most useful conceptual models and empirical analyses of the antecedents, consequences, and contingencies associated with the processes of entry?*
>
> *How do the cognitive biases and decision heuristics of entrepreneurs and executives influence which opportunities related to market entry are discovered and how are they evaluated and exploited?*
>
> *What role do stakeholders, ecosystems, and networks play in entry processes?*
>
> *How do innovations, including business model and disruptive innovations, influence entry?*

What roles do human resource practices play in the development and implementation of entry?

Does de novo entry require different resource configurations than de alio entry? How and why do these differences matter? Does this change depend upon entry context?

How do the interactions between a firm's governance and its entry strategies affect performance and other outcomes? (Journal of Management Studies, 2016)

REFERENCES

Online material

Agarwal, R & Moeen, M 2015, 'Entrepreneurial startups (de novo), diversifying entrants (de alio) and incumbent firms'. The Palgrave Encyclopedia of Strategic Management, [online] viewed 16 December 2015, http://www.palgraveconnect.com/esm/doifinder/10.1057/9781137294678.0156

Journal of Management Studies 2016: Special Issue Call for Papers: The Who, Where, What, How and When of Market Entry, viewed 15 October 2016, http://www.socadms.org.uk/wp-content/uploads/Market-Entry-SI-Call.pdf

United Nations 1993, *Convention on Biological Diversity*, online, viewed 30 October 2016, https://www.cbd.int/convention/text/

Research Articles

Agarwal, R & Bayus, BL 2004, 'Creating and surviving in new industries', *Advances in Strategic Management*, vol. 21, pp. 107-130.

Agarwal, S. & Ramaswami, SN 1992, 'Choice of foreign market entry mode: impact of ownership, location and internalization factors', *Journal of International Business Studies*, vol. 23, no. 1, pp. 1-27.

Andersson, E, Gatignon H 1986, 'Modes of foreign entry; a transaction cost analysis and propositions', *Journal of International Business Studies*, vol. 17, pp. 1-26.

Andersson, E, Coughlan A 1987, 'International market entry and expansion via independent or integrated channels of distribution', *Journal of Marketing*, vol. 51, pp.71-82.

Ansoff, Igor 1957, 'Strategies for Diversification', Harvard Business Review, Vol. 35, no. 5, pp. 113-124.

Bagchi-sen, S 2007, 'Strategic considerations for innovation and commercialization in the US biotechnology sector', *European Planning Studies*, vol. 15, no. 6, pp. 753-766.

Bayus, BL and Agarwal, R 2007, 'The Role of Pre-Entry Experience, Entry Timing, and Product Technology Strategies in Explaining Firm Survival', *Management Science*, vol 53, no. 12, pp 1887-1902.

Brouthers, K, Brouthers, L, & Werner S 1996, 'Dunning´ eclectic theory and the small firm', *International business review*, vol. 5, no. 4, pp. 377-394.

Buckley, PJ. & Casson, MC 1976, *The future of the multinational enterprise*, New York, Holmes and Meier publishers.

Buckley, PJ. & Casson, MC 1998, 'Analyzing foreign market entry strategies: Extending the internalization approach', *Journal of International Business Studies*, vol. 29, no. 3, pp. 539-561.

Burrill, S 2007, 'Biotechnology: Past, Present and Future', *BioPharm International*, vol. 20, no. 10, pp. 26-36.

Chen, SS, Hennart, JF 2002, 'Japanese investors´ choice of joint ventures versus wholly owned subsidiaries in the US: the role of market barriers and firm capabilities', *Journal of International Business Studies*, vol. 33, no. 1, pp. 1-18.

Chesbrough, H & Schwartz, K 2007, 'Innovating Business Models With Co-Development Partnerships', *Research Technology Management*, vol. 50, no. 1, pp. 55-59.

Christensen, Clayton M 1997, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail,* Harvard Business School Press, Boston, MA.

Christensen, C & Raynor M 2003. *The Innovator's Solution: Creating and sustaining successful growth*. Harvard Business School Press, Boston, MA.

Coase, RH 1937, 'The nature of firms', *Economica*, vol. 4, pp. 386-405.

Dencker JC, Gruber M &, Sonali KS 2009, 'Pre-entry knowledge, learning, and the survival of new firms', *Organization Science*, vol 20, no. 3, pp 516-537.

Dunning, J 1980, 'Toward an eclectic theory of international production: some empirical tests', *Journal of International Business Studies*, vol. 11, pp. 9-31.

Dunning, J 1995 A, 'Reappraising the eclectic paradigm in an age of alliance capitalism', *Journal of International Business Studies*, vol. 26, no. 3, pp. 461-491.

Dunning, J 1998, 'Location and the multinational enterprise: A neglected factor?', *Journal of International Business Studies*, vol. 29, no. 1, pp. 45-66.

Erickson, BH 1979, 'Some problems of inference from chain data', *Sociological Methodology*, vol. 10, pp. 276-302.

Eriksson, P & Kovalainen A 2008, *Qualitative methods in business research*, Sage Publications, London.

Erramilli, M, Rao, C 1993, 'Service firms´ choice of foreign-market entry modes: An empirical analysis using modified transaction cost framework', *Journal of marketing*, vol. 57, pp. 19-38.

Furness, G 2016, 'Partnering with Big-Pharma: Pfizer and CuDex's Positive Experience: A Case Study', *Drug Delivery Technology*, vol. 6, no. 1.

Furr, NR, Dyer, JH & Christensen, CM 2014, *The innovator's method: Bringing the lean startup into your organization*, Harvard Business Review Press, Boston, MA.

Gabrielsson, M, Kirpalani, VHM, Dimitratos, P, Solberg, A & Zucchella, A 2008,'Born globals: propositions to help advance the theory', *International Business Review*, vol. 17, pp. 385-401.

Gabrielsson, M & Kirpalani, VHM 2004,'Born globals: how to reach new business space rapidly', *International Business Review*, vol. 13, pp. 555-571.

Greis NP, Dibner, MD & Bean, AS 1995, 'External partnering as a response to innovation barriers and global competition in biotechnology', *Research policy: policy and management studies of science, technology and innovation*, vol. 24, pp. 609-630.

Gustafsson, R, Jääskeläinen, M, Maula, M & Uotila, J 2015, 'Emergence of Industries: A Review and Future Directions', *International Journal of Management Reviews*, vol. 00, pp.1–23.

Heckathorn, DD 1997, 'Respondent-driven sampling: A new approach to the study of hidden populations'. *Social Problems*, vol. 44, no. 2, pp. 174-199.

Hennart, JF 1986, 'Internationalization in practice: early foreign direct investment in Malaysian tin mining', *Journal of International Business Studies*, vol. 27, no. 6, pp. 679-690.

Hennart, JF, Park YR 1993, 'Greenfield vs. acquisition: The strategy of Japanese investors in the United States', *Management Science*, vol. 39, no. 9, pp. 1054-1070.

Hennart, JF & Slangen, A 2014, 'Yes, we really do need more entry mode studies! A commentary on Shaver', *Journal of International Business Studies*, vol. 46, pp. 114-122.

Hymer, SH 1976, *The international operations of national firms: a study of direct foreign investment*, MA, MIT press

Ito, K & Rose, EL 2002, 'Foreign direct investment location strategies in the tire industry', *Journal of International Business Studies*, vol. 33, no. 3, pp. 593-602.

Johanson, J & Vahlne, JE 1977. 'The internationalization process of the firm - A model of knowledge development and increasing foreign market commitments'. *Journal of International Business Studies*, vol. 8, pp. 23–32.

Johanson, Jan 1990. 'The mechanism of internationalization'. *International Management Review*, vol. 7, no. 4, pp. 11–24.

Johanson, J & Wiedersheim-Paul, F 1975, 'The internationalization of the firm: Four Swedish cases', *Journal of International Business Studies*, vol. 12, pp.305-322.

Klein, S, Frazier, L, Roth, V 1990, 'A transaction cost analysis model of channel integration in international markets', *Journal of Marketing Research*, vol. 27, pp. 196-208.

Klepper, S 2002, 'The capabilities of new firms and the evolution of the US automobile industry', *Oxford Journals, Social Sciences, Industrial and Corporate Change,* vol. 11, no. 4, pp. 645-666.

Laanti, R, Gabrielsson, M, Gabrielsson, P 2006, 'The globalization strategies of business-to-business born global firms in the wireless technology industry', *Industrial Marketing Management*, vol. 10, no. 3, pp. 1-10.

Lieberman, MB & Montgomery, DB 1988, 'First-mover advantages', *Strategic Management Journal*, vol. 9, pp. 41-58.

Maine, E, Thomas VJ, Bliemel M, Murira A & Utterback J 2014, 'The emergence of the nanobiotechnology industry', *Nature Nanotechnology,* vol. 9, pp. 2-5.

McCarthy, I , Pitt, L, Campbell, C , van der Merwe, R & Salehi-Sangeri, E 2007, 'Exploiting the business opportunities in biotech connections: The power of social networks', *Journal of Commercial Biotechnology,* vol. 13, no. 4, pp. 245-257.

Morgan, DL 2008, 'Snowball Sampling', in Give, LM (ed.), *The Sage Encyclopedia of Qualitative Research Methods*, pp. 816-817, SAGE Publications, Inc, Thousand Oaks.

Onetti, A & Zucchella A 2014, *Business modeling for life science and biotech companies: Creating value and competitive advantage with the milestone bridge*, Routledge, New York

O´Reilly, CA & Tushman ML 2004, 'The Ambidextrous Organization', *Harvard Business Review*, April issue.

Oviatt, BM, McDougall PP 1995, 'Global start-ups: Entrepreneurs on a global scale', *Academy of management executive*, vol. 9, no. 2, pp. 30.43.

Oviatt, BM, McDougall PP 2005, 'Toward a theory of international new ventures', *Journal of International Studies*, vol. 36, pp. 29-41.

Peltoniemi, M 2014, 'How do the determinants of firm survival chance in the course of the industry life cycle? A fuzzy-set analysis', *Technology Analysis & Strategic Management*, vol. 26, no. 2, pp. 223-239.

Peltoniemi, M 2011, 'Reviewing Industry Life-cycle Theory: Avenues for Future Research', *International Journal of Management Reviews,* vol. 13, pp. 349-375.

Peng, MW 2001,'The resource-based view and international business', *Journal of Management*, Pergamon, vol. 27, pp. 803-829.

Phene, A & Tallman, S 2012, 'Complexity, context and governance in biotechnology alliances', *Journal of International Business Studies*, vol. 43, pp. 61–83.

Pisano, Gary P 2006, *Science Business: The promise, the reality and the future of biotech*, Harvard business school press, Boston, Ma.

Powell, WW 1998, 'Learning from collaboration: Knowledge and networks in the biotechnology and pharmaceutical industries', *California Management Review*, vol. 40, pp. 228 –240.

Powell, WW, White, DR, Koput, KW, Owen-Smith, J 2005, 'Network Dynamics and Field Evolution: The Growth of Interorganizational Collaboration in the Life Sciences', *American Journal of Sociology*, vol. 110, no. 4, pp. 1132-1205.

Poh, LY 1987, "Product life cycle and export competitiveness of the UK electronics industries", *European Journal of Marketing*, vol. 21, no. 7, pp. 28-37.

Root, FJ 1983, *Foreign Market Entry Strategies*, Amacon, New York.

Root, FJ 1994, Entry Strategies for International Markets, Lexington, New York.

Sharma, VM & Erramilli, MK 2004, 'Resource-based explanation of entry mode choice', *Journal of Marketing Theory and Practice*, vol. 12, no. 1, pp. 1-18.

Shaver, M 2013, 'Do we really need more entry mode studies?', *Journal of International Business Studies*, vol. 44, pp. 23-27.

Stremersch S & Van Dyck, W 2009, 'Marketing of the Life Sciences: A New Framework and Research Agenda for a Nascent Field', *Journal of Marketing*, vol. 73, no. 4, pp. 4-30.

Siggelkow, N 2007. 'Persuasion with case studies', *Academy of Management Journal*, vol. 50, no. 1, pp. 20-24.

Suarez, FF, Grodal S & Gotsopoulos A 2015, 'Perfect timing? Dominant category, dominant design and the window of opportunity for firm entry', *Strategic Management Journal*, vol. 36, pp. 437-448.

Teece, D 1980, "The multinational enterprise: Market failure and market power considerations", *Sloan Management Review*, vol. 22, pp. 3-17.

Vermon, R 1966, "International investment and international trade in the product cycle", *The quarterly Journal of Economics*, vol. 80, pp. 190-207.

Zachary, MA, Gianiodis, PT, Payne, T. & Markman, GD 2015, 'Entry timing: Enduring lessons and future directions', *Journal of Management*, vol. 41, pp. 1388-1415.